KDJ11-A KDJ11 FPP DIAG
CZKDLBO

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AH-T709B-MC
FICHE 01 OF 01

JUL 1984
digital
Made In USA

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                                                        .REM &



                        IDENTIFICATION
                        ---- ---- ----
        PRODUCT CODE:   AC-T708B-MC

        PRODUCT NAME:   CZKDLBO KDJ11 FLOATING POINT DIAGNOSTIC

        PRODUCT DATE:   15-MAR-84

        MAINTAINER:     DIAGNOSTIC ENGINEERING

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                                                                    .REM &
                                        HISTORY


        OCT 83  REV. A          FIRST RELEASE
        FEB 84  REV. B          CORRECTIONS MADE TO:
                                1. CORRECT VECTOR AREA MAINTENANCE PROBLEM
                                2. TURN CACHE MEMORY SYSTEM OFF DURING NON-CACHE TESTS.
                                3. ENSURE THAT CPU ERROR REGISTER IS CLEARED AFTER
                                   COMPLETION OF TEST THAT MIGHT CAUSE IT TO BE SET.
                                4. SAVE PC AND CONTENTS OF R6 ON UNEXPECTED INTERRUPTS

                                                                    &
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                1.0   GENERAL INFORMATION

                1.1   PROGRAM ABSTRACT

                THIS IS AN APT COMPATIBLE VERSION OF THE KDJ11 FLOATING POINT
                INSTRUCTION TESTS. IT FOCUSES ON TESTING THE KDJ11 FLOATING POINT
                INSTRUCTION FUNCTIONALITY.

                1.2   SYSTEM REQUIREMENTS

                KDJ11-A PROCESSOR MODULE
                ENSURE THAT HALT TRAP OPTION IS DISABLED (JUMPER W9 INSTALLED)
                32KW MEMORY
                Q-22 BACKPLANE (18 BIT QBUS MAY BE USED WITH REDUCED TEST COVERAGE)
                SERIAL LINE UNIT AND CONSOLE TERMINAL (CONSOLE TERMINAL NOT REQUIRED FOR APT)

                1.3   RELATED DOCUMENTS AND STANDARDS

                KDJ11-A MODULE SPECIFICATION REV 2.2
                PDP11 MAINDEC SYSMAC PACKAGE
                J11 CONTROL CHIP SPECIFICATION 21-17679-00
                J11 DATA CHIP SPECIFICATION 21-17677-00

                1.4   DIAGNOSTIC HIERARCY PREREQUISITES

                THE KDJ11 CPU AND MEMORY MANAGEMENT DIAGNOSTICS MUST
                RUN SUCCESSFULLY PRIOR TO RUNNING THE FLOATING POINT
                TESTS.

                1.5   ASSUMPTIONS

                IT IS ASSUMED THAT THE DIAGNOSTIC OPERATOR IS FAMILIAR WITH
                THE XXDP+ OPERATING SYSTEM AND THE J11 MICRO-ODT.

                2.0   OPERATING INSTRUCTIONS

                2.1   LOADING AND STARTING PROCEEDURE

                LOAD PROGRAM INTO MEMORY USING STANDARD XXDP+ PROCEEDURES.
                THE PROGRAM IS STARTED BY LOADING ADDRESS 200 AND USING
                THE J11 MICRO-ODT G COMMAND TO START. THE PROGRAM
                IDENTIFICATION MESSAGE WILL BE TYPED AFTER THE FIRST PASS
                OF THE COMPLETE PROGRAM.

                2.2   PROGRAM OPTIONS

                THE FOLLOWING ASSIGNMENTS HAVE BEEN MADE FOR THE KDJ11-A
                DIAGNOSTIC SWITCH REGISTER BITS:

                BIT#15     14       13       12       11       10       9       8
                * -    -*   -  -* - -  -*-- ----* ---  --*----- -*-------*-------*
                                                          DON'T   18 BIT  EXTENDED
                                                          TEST    ADDRESS  CACHE
                                                          BEVENT    ONLY   TESTS
```

```
*   ---*- - ---* -  -  *--     *--   ---*   - --*- -   *-   -  *

THE SOFTWARE SWITCH REGISTER HAS NO EFFECT ON THE OPERATION OF
THIS DIAGNOSTIC.

2.3   OPERATION UNDER APT

THERE ARE NO ABNORMALITIES IN THE EXECUTION OF THIS DIAGNOSTIC
WHEN OPERATING IN AN APT ENVIRONMENT. PROBLEMS CAUSED BY THE
ASYNCHRONOUS HALTS OF THE DIAGNOSTIC BY THE APT MONITOR HAVE
NOT BEEN NOTED.


3.0   ERROR INFORMATION

ERRORS WILL CAUSE THE FOLLOWING ERROR MESSAGE TO BE PRINTED:

                ERROR DURING FPP TESTING
                ERROR # = (UNIQUE ERROR NUMBER)
                ERROR PC = (PC AT TIME OF ERROR)

THE ERROR WILL THEN BE REPORTED TO APT AND THE PROGRAM
WILL HALT.

4.0   PROGRESS REPORT

AT THE END OF EACH PASS THE DIAGNOSTIC NAME AND PASS COUNT ARE PRINTED.
```

```
                        .TITLE PROGRAM HEADER AND TABLES
                        .SBTTL  PROGRAM HEADER

                                .MCALL  NEWTST,ERRDEF,.EQUAT,.KT11,.$40CAT,.$EOP,.$APTBLS,SETUP
                                .MCALL  .$TYPE,.$TYPDEC,ERRDF,BGNTST,ENDTST,BGNMOD,ENDMOD,CKLOOP
                                .MCALL  .HEADER,.SETUP,.$TRAP,BGNSUB,ENDSUB,.$ACT11,.$APTHDR
                                .MCALL  .$APTYPE,.$ERROR,.$TYPOCT,.$READ



                        .TITLE  KDJ11-A FLOATING POINT DIAGNOSTIC
                        ;*COPYRIGHT (C) OCTOBER,1983
                        ;*DIGITAL EQUIPMENT CORP.
                        ;*MAYNARD, MASS. 01754
                        ;*
                        ;*
                        ;*THIS PROGRAM WAS ASSEMBLED USING THE PDP-11 MAINDEC SYSMAC
                        ;*PACKAGE (MAINDEC-11-DZQAC-C3), JAN 19, 1977.
                        ;*
000001                  $TN=1
160000                  $SWR=160000     ;;HALT ON ERROR, LOOP ON TEST, INHIBIT ERROR TYPOUT
```

```
                        .TITLE GLOBAL AREAS
                        .SBTTL  GLOBAL EQUATES SECTION

                        ;++
                        ; THE GLOBAL EQUATES SECTION CONTAINS PROGRAM EQUATES THAT
                        ; ARE USED IN MORE THAN ONE TEST.
                        ;
                        .SBTTL  BASIC DEFINITIONS

                        ;*INITIAL ADDRESS OF THE STACK POINTER *** 1000 ***
001000                  STACK=  1000
                        .EQUIV  EMT,ERROR       ;;BASIC DEFINITION OF ERROR CALL
                        .EQUIV  IOT,SCOPE       ;;BASIC DEFINITION OF SCOPE CALL

                        ;*MISCELLANEOUS DEFINITIONS
000011                  HT=     11              ;;CODE FOR HORIZONTAL TAB
000012                  LF=     12              ;;CODE FOR LINE FEED
000015                  CR=     15              ;;CODE FOR CARRIAGE RETURN
000200                  CRLF    200             ;;CODE FOR CARRIAGE RETURN-LINE FEED
177776                  PS=     177776          ;;PROCESSOR STATUS WORD
                        .EQUIV  PS,PSW
177774                  STKLMT= 177774          ;;STACK LIMIT REGISTER
177772                  PIRQ=   177772          ;;PROGRAM INTERRUPT REQUEST REGISTER
177570                  DSWR=   177570          ;;HARDWARE SWITCH REGISTER
177570                  DDISP=  177570          ;;HARDWARE DISPLAY REGISTER

                        ;*GENERAL PURPOSE REGISTER DEFINITIONS
000000                  R0=     %0              ;;GENERAL REGISTER
000001                  R1=     %1              ;;GENERAL REGISTER
000002                  R2=     %2              ;;GENERAL REGISTER
000003                  R3=     %3              ;;GENERAL REGISTER
000004                  R4=     %4              ;;GENERAL REGISTER
000005                  R5=     %5              ;;GENERAL REGISTER
000006                  R6=     %6              ;;GENERAL REGISTER
000007                  R7=     %7              ;;GENERAL REGISTER
000006                  SP=     %6              ;;STACK POINTER
000007                  PC=     %7              ;;PROGRAM COUNTER

                        ;*PRIORITY LEVEL DEFINITIONS
000000                  PR0=    0               ;;PRIORITY LEVEL 0
000040                  PR1=    40              ;;PRIORITY LEVEL 1
000100                  PR2=    100             ;;PRIORITY LEVEL 2
000140                  PR3=    140             ;;PRIORITY LEVEL 3
000200                  PR4=    200             ;;PRIORITY LEVEL 4
000240                  PR5=    240             ;;PRIORITY LEVEL 5
000300                  PR6=    300             ;;PRIORITY LEVEL 6
000340                  PR7=    340             ;;PRIORITY LEVEL 7

                        ;*"SWITCH REGISTER" SWITCH DEFINITIONS
100000                  SW15=   100000
040000                  SW14=   40000
020000                  SW13=   20000
010000                  SW12=   10000
004000                  SW11=   4000
002000                  SW10=   2000
001000                  SW09=   1000
```

```
                        SW08=   400
                        SW07=   200
                        SW06=   100
                        SW05=   40
                        SW04=   20
                        SW03=   10
                        SW02=   4
                        SW01=   2
                        SW00=   1
                        .EQUIV  SW09,SW9
                        .EQUIV  SW08,SW8
                        .EQUIV  SW07,SW7
                        .EQUIV  SW06,SW6
                        .EQUIV  SW05,SW5
                        .EQUIV  SW04,SW4
                        .EQUIV  SW03,SW3
                        .EQUIV  SW02,SW2
                        .EQUIV  SW01,SW1
                        .EQUIV  SW00,SW0

                        ;*DATA BIT DEFINITIONS (BIT00 TO BIT15)
100000                  BIT15=  100000
040000                  BIT14=  40000
020000                  BIT13=  20000
010000                  BIT12=  10000
004000                  BIT11=  4000
002000                  BIT10=  2000
001000                  BIT09=  1000
000400                  BIT08=  400
000200                  BIT07=  200
000100                  BIT06=  100
000040                  BIT05=  40
000020                  BIT04=  20
000010                  BIT03=  10
000004                  BIT02=  4
000002                  BIT01=  2
000001                  BIT00=  1
                        .EQUIV  BIT09,BIT9
                        .EQUIV  BIT08,BIT8
                        .EQUIV  BIT07,BIT7
                        .EQUIV  BIT06,BIT6
                        .EQUIV  BIT05,BIT5
                        .EQUIV  BIT04,BIT4
                        .EQUIV  BIT03,BIT3
                        .EQUIV  BIT02,BIT2
                        .EQUIV  BIT01,BIT1
                        .EQUIV  BIT00,BIT0

                        ;*BASIC "CPU" TRAP VECTOR ADDRESSES
000004                  ERRVEC= 4               ;;TIME OUT AND OTHER ERRORS
000010                  RESVEC= 10              ;;RESERVED AND ILLEGAL INSTRUCTIONS
000014                  TBITVEC=14              ;;"T" BIT
000014                  TRTVEC= 14              ;;TRACE TRAP
000014                  BPTVEC= 14              ;;BREAKPOINT TRAP (BPT)
000020                  IOTVEC= 20              ;;INPUT/OUTPUT TRAP (IOT) **SCOPE**
000024                  PWRVEC= 24              ;;POWER FAIL
```

```
                        EMTVEC= 30              ;;EMULATOR TRAP (EMT) **ERROR**
                        TRAPVEC=34              ;;"TRAP" TRAP
                        TKVEC=  60              ;;TTY KEYBOARD VECTOR
                        TPVEC=  64              ;;TTY PRINTER VECTOR
                        PIRQVEC=240             ;;PROGRAM INTERRUPT REQUEST VECTOR
                        .SBTTL  MEMORY MANAGEMENT DEFINITIONS

                        ;*KT11 VECTOR ADDRESS

                        MMVEC=  250

                        ;*KT11 STATUS REGISTER ADDRESSES

                        SR0=    177572
                        SR1=    177574
                        SR2=    177576
                        SR3=    172516

                        ;*USER "I" PAGE DESCRIPTOR REGISTERS

                        UIPDR0= 177600
                        UIPDR1= 177602
                        UIPDR2= 177604
                        UIPDR3= 177606
                        UIPDR4= 177610
                        UIPDR5= 177612
                        UIPDR6= 177614
                        UIPDR7= 177616

                        ;*USER "D" PAGE DESCRIPTOR REGISTORS

                        UDPDR0= 177620
                        UDPDR1= 177622
                        UDPDR2= 177624
                        UDPDR3= 177626
                        UDPDR4= 177630
                        UDPDR5= 177632
                        UDPDR6= 177634
                        UDPDR7= 177636

                        ;*USER "I" PAGE ADDRESS REGISTERS

                        UIPAR0= 177640
                        UIPAR1= 177642
                        UIPAR2= 177644
                        UIPAR3= 177646
                        UIPAR4= 177650
                        UIPAR5= 177652
                        UIPAR6= 177654
                        UIPAR7= 177656

                        ;*USER "D" PAGE ADDRESS REGISTERS

                        UDPAR0= 177660
                        UDPAR1= 177662
                        UDPAR2= 177664
```

```
                        UDPAR3= 177666
                        UDPAR4= 177670
                        UDPAR5= 177672
                        UDPAR6= 177674
                        UDPAR7= 177676

                        ;*SUPERVISOR "I" PAGE DESCRIPTOR REGISTERS

                        SIPDR0= 172200
                        SIPDR1= 172202
                        SIPDR2= 172204
                        SIPDR3= 172206
                        SIPDR4= 172210
                        SIPDR5= 172212
                        SIPDR6= 172214
                        SIPDR7= 172216

                        ;*SUPERVISOR "D" PAGE DESCRIPTOR REGISTERS

                        SDPDR0= 172220
                        SDPDR1= 172222
                        SDPDR2= 172224
                        SDPDR3= 172226
                        SDPDR4= 172230
                        SDPDR5= 172232
                        SDPDR6= 172234
                        SDPDR7= 172236

                        ;*SUPERVISOR "I" PAGE ADDRESS REGISTERS

                        SIPAR0= 172240
                        SIPAR1= 172242
                        SIPAR2= 172244
                        SIPAR3= 172246
                        SIPAR4= 172250
                        SIPAR5= 172252
                        SIPAR6= 172254
                        SIPAR7= 172256

                        ;*SUPERVISOR "D" PAGE ADDRESS REGISTERS

                        SDPAR0= 172260
                        SDPAR1= 172262
                        SDPAR2= 172264
                        SDPAR3= 172266
                        SDPAR4= 172270
                        SDPAR5= 172272
                        SDPAR6= 172274
                        SDPAR7= 172276

                        ;*KERNEL "I" PAGE DESCRIPTOR REGISTERS

                        KIPDR0= 172300
                        KIPDR1= 172302
                        KIPDR2= 172304
                        KIPDR3= 172306
```

```
                172310          KIPDR4= 172310
                172312          KIPDR5= 172312
                172314          KIPDR6= 172314
                172316          KIPDR7= 172316

                                ;*KERNEL "D" PAGE DESCRIPTOR REGISTERS

                172320          KDPDR0= 172320
                172322          KDPDR1= 172322
                172324          KDPDR2= 172324
                172326          KDPDR3= 172326
                172330          KDPDR4= 172330
                172332          KDPDR5= 172332
                172334          KDPDR6= 172334
                172336          KDPDR7= 172336

                                ;*KERNEL "I" PAGE ADDRESS REGISTERS

                172340          KIPAR0= 172340
                172342          KIPAR1= 172342
                172344          KIPAR2= 172344
                172346          KIPAR3= 172346
                172350          KIPAR4= 172350
                172352          KIPAR5= 172352
                172354          KIPAR6= 172354
                172356          KIPAR7= 172356

                                ;*KERNEL "D" PAGE ADDRESS REGISTERS

                172360          KDPAR0= 172360
                172362          KDPAR1= 172362
                172364          KDPAR2= 172364
                172366          KDPAR3= 172366
                172370          KDPAR4= 172370
                172372          KDPAR5= 172372
                172374          KDPAR6= 172374
                172376          KDPAR7= 172376

                                ;THESE ARE FLOATING POINT ACCUMULATOR EQUATES
                000000          AC0=    %0
                000001          AC1=    %1
                000002          AC2=    %2
                000003          AC3=    %3
                000004          AC4=    %4
                000005          AC5=    %5
                000006          AC6=    %6
                000007          AC7=    %7

                000244          FPVEC=  244

                                ;THESE ARE CACHE REGISTER EQUATES
                177746          CCR=    177746          ;CACHE CONTROL REGISTER
                177744          MSER=   177744          ;MEMORY SYSTEM ERROR REGISTER
                177752          HITMIS= 177752          ;HIT/MISS REGISTER
                177766          CPEREG= 177766          ;CPU ERROR REGISTER
```

```
                                ;MISCELANEOUS DEFINITIONS
177546                          BEVENT= 177546          ;BEVENT CONTROL REGISTER
177560                          RCSR=   177560
177562                          RBUF=   177562
177564                          XCSR=   177564
177566                          XBUF=   177566
000000                          ERRTN=  HALT
000001                          $TSTNU=1
000001                          ERRNUM= 1               ;INITIALIZE ERROR NUMBER COUNTER
002000                          AUSWR=  2000            ;SWR FOR APT--NO BEVENT TESTING


                                ;THIS EQUATE DEFINES THE BOTTOM OF THE PROGRAM STACK POINTER
001000                                  STBOT=  1000
000000                          .ASECT
                                .SBTTL  TRAP CATCHER

000000                                  .=0
                                ;*ALL UNUSED LOCATIONS OF THE VECTOR AREA CONTAIN
                                ;*A ".+2, IOT" SEQUENCE TO CATCH AND PROCESS ILLEGAL
                                ;*TRAPS AND INTERRUPTS THAT MIGHT OCCUR.
                                ;*THE IOT TRAP WHICH IS TAKEN ON THE ILLEGAL TRAP/INT
                                ;*TRAPS TO THE $SCOPE ROUTINE WHICH (IF THE RETURN PC IS
                                ;*LESS THAN 1002) JUMPS TO THE $ERROR ROUTINE.
                                ;*THE $ERROR ROUTINE WILL REPORT THE ERROR AS FOLLOWS:
                                ;*      PC=YYYYYY UNEXPECTED TRAP TO XXX
                                ;*AND RETURN TO THE PROGRAM AT PC=YYYYYY+2
                                ;*WHERE XXX=LOCATION OF ILLEGAL TRAP
                                ;*      YYYYYY=PC AT TIME OF TRAP
                                ;*NOTE: IF THE PROCESSOR IS NOT AN 11/05 THE PROGRAM
                                ;*      CAN BE STARTED AT ADDRESS 0 AS WELL AS ADDRESS 200.
000000  000000                  $4OCAT: HALT                    ;;HALT
000002  000737                          BR      .-100           ;;BRANCH TO 177700 & TIME OUT (NOT ON
                                                                ;;11/05)
000004  002200                          .WORD   START           ;;VECTOR TO STARTING ADDRESS
000006  000340                          .WORD   340             ;;WITH PRIORITY LEVEL 7
        000174                          .=174
000174  000000                  DISPREG:.WORD   0               ;;SOFTWARE DISPLAY REGISTER
000176  000000                  SWREG:  .WORD   0               ;;SOFTWARE SWITCH REGISTER
                                .SBTTL  STARTING ADDRES(ES)
000200  000137  002200                  JMP     @#START ;;GO TO START OF PROGRAM
                                .SBTTL  ACT11 HOOKS

                                ;;******************************************************************
                                ;HOOKS REQUIRED BY ACT11
        000204                          $SVPC=.                 ;SAVE PC
        000046                          .=46
000046  036362                          $ENDAD                  ;;1)SET LOC.46 TO ADDRESS OF $ENDAD IN .$EOP
        000052                          .=52
000052  000000                          .WORD   0               ;;2)SET LOC.52 TO ZERO
        000204                          .=$SVPC                 ;; RESTORE PC
                                .SBTTL  APT PARAMETER BLOCK


                                ;;******************************************************************
                                ;SET LOCATIONS 24 AND 44 AS REQUIRED FOR APT
```

```
                                ;;*****************************************************************
          000204                        .$X=.    ;;SAVE CURRENT LOCATION
          000024                        .=24     ;;SET POWER FAIL TO POINT TO START OF PROGRAM
  000024  000200                        200      ;;FOR APT START UP
          000044                        .=44     ;;POINT TO APT INDIRECT ADDRESS PNTR.
  000044  000204                        $APTHDR  ;;POINT TO APT HEADER BLOCK
          000204                        .=.$X    ;;RESET LOCATION COUNTER
                                ;;*****************************************************************
                                ;SETUP APT PARAMETER BLOCK AS DEFINED IN THE APT-PDP11 DIAGNOSTIC
                                ;INTERFACE SPEC.

  000204                        $APTHD:
  000204  000000                $HIBTS: .WORD   0        ;;TWO HIGH BITS OF 18 BIT MAILBOX ADDR.
  000206  001000                $MBADR: .WORD   $MAIL    ;;ADDRESS OF APT MAILBOX (BITS 0-15)
  000210  000001                $TSTM:  .WORD   1        ;;RUN TIM OF LONGEST TEST
  000212  000002                $PASTM: .WORD   2        ;;RUN TIME IN SECS. OF 1ST PASS ON 1 UNIT (QUICK VERIFY)
  000214  000000                $UNITM: .WORD   0        ;;ADDITIONAL RUN TIME (SECS) OF A PASS FOR EACH ADDITIONAL UNIT
  000216  000014                        .WORD   $ETEND-$MAIL/2 ;;LENGTH MAILBOX-ETABLE(WORDS)
          000204                .=.$X                    ;SAVE CURRENT LOCATION COUNT
          000002                .=2
  000002  000000                0
  000004  000006                6
  000006  000004                4                                ;SET UP SOME VECTORS
          000204                .=.$X                            ;RESTORE LOCATION COUNT
          001000                .=1000
```

```
                                .SBTTL  GLOBAL DATA SECTION

                                ;++
                                ; THE GLOBAL DATA SECTION CONTAINS DATA THAT ARE USED
                                ; IN MORE THAN ONE TEST.
                                ;-
                                .SBTTL  APT MAILBOX-ETABLE

                                ;;*****************************************************************
                                .EVEN
001000                          $MAIL:                          ;;APT MAILBOX
001000  000000                  $MSGTY: .WORD   AMSGTY   ;;MESSAGE TYPE CODE
001002  000000                  $FATAL: .WORD   AFATAL   ;;FATAL ERROR NUMBER
001004  000000                  $TESTN: .WORD   ATESTN   ;;TEST NUMBER
001006  000000                  $PASS:  .WORD   APASS    ;;PASS COUNT
001010  000000                  $DEVCT: .WORD   ADEVCT   ;;DEVICE COUNT
001012  000000                  $UNIT:  .WORD   AUNIT    ;;I/O UNIT NUMBER
001014  000000                  $MSGAD: .WORD   AMSGAD   ;;MESSAGE ADDRESS
001016  000000                  $MSGLG: .WORD   AMSGLG   ;;MESSAGE LENGTH
001020                          $ETABLE:                        ;;APT ENVIRONMENT TABLE
001020  000                     $ENV:   .BYTE   AENV     ;;ENVIRONMENT BYTE
001021  000                     $ENVM:  .BYTE   AENVM    ;;ENVIRONMENT MODE BITS
001022  000000                  $SWREG: .WORD   ASWREG   ;;APT SWITCH REGISTER
001024  002000                  $USWR:  .WORD   AUSWR    ;;USER SWITCHES
001026  000000                  $CPUOP: .WORD   ACPUOP   ;;CPU TYPE,OPTIONS
                                ;*                              BITS 15-11=CPU TYPE
                                ;*                                      11/04=01,11/05=02,11/20=03,11/40=04,11/45=05
                                ;*                                      11/70=06,PDQ=07,Q=10
                                ;*                              BIT 10=REAL TIME CLOCK
                                ;*                              BIT  9=FLOATING POINT PROCESSOR
                                ;*                              BIT  8=MEMORY MANAGEMENT
001030                          $ETEND:
                                .MEXIT

                                ;THESE LOCATIONS ARE USED IN MORE THAN ONE TEST TO STORE VECTOR DATA
                                ;WHEN THE TEST NEEDS TO HAVE AN ERROR CONDITION RESPOND DIFFERENTLY
                                ;FROM THE DEFAULT RESPONCE.
001030  000000                  SLOC00: .WORD   0
001032  000000                  SLOC01: .WORD   0

                                ;THESE LOCATIONS ARE USED IN MORE THAN ONE TEST TO STORE WORKING DATA.
001034  000000                  EXPDAT: .WORD   0               ;STORES EXPECTED (GOOD) DATA FOR COMPARISONS
001036  000000                  RECDAT: .WORD   0               ;STORES RECIEVED DATA TO BE VERIFIED
001040  000000                  COUNT:  .WORD   0               ;ERROR INDICATOR FOR FLOATING POINT TESTS
001042  000000                  FLAG:   .WORD   0               ;USED TO STORE "FLAG" CONDITIONS
001044  000000                  ERRCNT: .WORD   0               ;STORAGE FOR ERROR COUNT
001046  177570                  SWR:    .WORD   DSWR            ;STORAGE FOR SWITCH REGISTER ADDRESS
001050  177570                  DISPLAY:.WORD   DDISP           ;STORAGE FOR DISPLAY REGISTER ADDRESS
001052  000000                  $ERFLG: .WORD   0               ;ERROR FLAG
                                ;THESE LOCATIONS ARE USED BY MORE THAN ONE TEST AS LOOP COUNTERS
001054  000000                  DCOUNT: .WORD   0
001056  000000                  ALLCTR: .WORD   0
001060  000000                  LOOPIN: .WORD   0
001062  000000                  SAVSP1: .WORD   0               ;STORAGE FOR UNEXPECTED TRAP DATA
001064  000000                  SAVSP2: .WORD   0               ;
```

```
                                ;STORES EXPONENT DURING BIT TESTS
                                ;STORES RECIEVED DATA FOR BIT TESTS
                                ;RECIEVED FLOATING POINT EXCEPTION CODE
                                ;RECIEVED FLOATING POINT STATUS
                                ;DESTINATION ADDRESS FOR FLOATING POINT TESTS
```

```
001066  000004  BTEXP:  .BLKW   4
001076  000004  BTRES:  .BLKW   4
001106  000004  RECFEC: .BLKW   4
001116  000004  RECST:  .BLKW   4
001126  000004  RECDST: .BLKW   4
```

```
                ;!!!!!!THIS IS IT. THE PROGRAM TEST LOCATION AND WRITE BUFFER!!!!!!!!!!!!!!!!!!
001136          TSTLOC:
001136  000020          .BLKW   20
```

```
                        ;
                        ;  TAB1 - TAB13 - TEST TABLES FOR ETABLE
                        ;
001176 123456           TAB1:   .WORD   123456
001200 000000                   .WORD   000000
001202 000000                   .WORD   0
001204 000001                   .WORD   1
001206 055555           TAB2:   .WORD   055555
001210 177777                   .WORD   177777
001212 145671                   .WORD   145671
001214 100000                   .WORD   100000
001216 003000           TAB3:   .WORD   003000
001220 123456                   .WORD   123456
001222 000000                   .WORD   0
001224 000000                   .WORD   0
001226 055555           TAB4:   .WORD   55555
001230 177777                   .WORD   -1
001232 000000                   .WORD   0
001234 000000                   .WORD   0
001236 043243           TAB5:   .WORD   43243
001240 000000                   .WORD   0
001242 000000                   .WORD   0
001244 000000                   .WORD   0
001246 162400           TAB5A:  .WORD   162400
001250 000000                   .WORD   0
001252 000000                   .WORD   0
001254 000000                   .WORD   0
001256 000000           TAB6:   .WORD   0
001260 000000                   .WORD   0
001262 000000                   .WORD   0
001264 000000                   .WORD   0
001266 047050           TAB6A:  .WORD   47050
001270 010000                   .WORD   10000
001272 000000                   .WORD   0
001274 000000                   .WORD   0
001276 000200           TAB7:   .WORD   200
001300 000000                   .WORD   0
001302 000000                   .WORD   0
001304 000000                   .WORD   0
001306 000200           TAB8:   .WORD   200
001310 000000                   .WORD   0
001312 000000                   .WORD   0
001314 000001                   .WORD   1
001316 000400 000000 000000 TAB9:   .WORD   400,0,0,0
001324 000000
001326 030000           TAB10:  .WORD   30000
001330 003000                   .WORD   3000
001332 000000                   .WORD   0
001334 000000                   .WORD   0
001336 016400           TAB11:  .WORD   16400
001340 000000                   .WORD   0
001342 000000                   .WORD   0
001344 000000                   .WORD   0
001346 030000 003000 000002 TAB11A: .WORD   30000,3000,2.0
001354 000000
001356 016100 000000 000000 TAB12:  .WORD   16100,0,0,1
001364 000001
001366 016200           TAB13:  .WORD   16200
001370 000000                   .WORD   0
```

```
   666  001372  000000                                  .WORD   0
   667  001374  000001                                  .WORD   1
   668  001376  030000  003000  000000  TAB13B: .WORD   30000,3000,0,140000
   669  001404  140000
   670  001406  030000                    TAB14:  .WORD   30000
   671  001410  000000                            .WORD   0
   672  001412  000000                            .WORD   0
   673  001414  000000                            .WORD   0
   674  001416  024700                    TAB15:  .WORD   24700
   675  001420  000000                            .WORD   0
   676  001422  000000                            .WORD   0
   677  001424  000000                            .WORD   0
   678  001426  025000                    TAB16:  .WORD   25000
   679  001430  175363                            .WORD   175363
   680  001432  123456                            .WORD   123456
   681  001434  123456                            .WORD   123456
   682  001436  030000                    TAB17:  .WORD   30000
   683  001440  007020                            .WORD   7020
   684  001442  000000  000000                    .WORD   0,0
   685  001446  023456                    TAB18:  .WORD   23456
   686  001450  000000                            .WORD   0
   687  001452  000000                            .WORD   0
   688  001454  000001                            .WORD   1
   689  001456  100200  000000  000000  TAB21:  .WORD   100200.0,0,0
   690  001464  000000
   691  001466  100400  000000  000000  TAB22:  .WORD   100400.0,0,0
   692  001474  000000
   693  001476  000200  000000  000000  TAB23:  .WORD   200,0,0,1
   694  001504  000001
   695  001506  062400  000000  000000  TAB24:  .WORD   62400.0,0,0
   696  001514  000000
   697  001516  001100  000000  000000  TAB25:  .WORD   1100,0,0,0
   698  001524  000000
   699  001526  100600  000000  000000  TAB26:  .WORD   100600.0,0,0
   700  001534  000000
   701  001536  001000  000000  000000  TAB27:  .WORD   1000,0,0,0
   702  001544  000000
   703  001546  000600  000000  000000  TAB28:  .WORD   600,0,0,0
   704  001554  000000
   705  001556  010100  000000  000000  TAB29:  .WORD   10100,0,0,0
   706  001564  000000
   707  001566  010100  000000  002000  TAB29A: .WORD   10100,0,2000,0
   708  001574  000000
   709
   710  001576  000500  000000  000000  TAB30:  .WORD   500,0,0,0
   711  001604  000000
   712  001606  100400  000000  000000  TAB31:  .WORD   100400.0,0,0
   713  001614  000000
   714  001616  016000  000000  000000  TAB32:  .WORD   16000.0,0,0
   715  001624  000000
   716  001626  011600  000000  000000  TAB33:  .WORD   11600.0,0,0
   717  001634  000000
   718  001636  000640  000000  000000  TAB34:  .WORD   640,0,0,0
   719  001644  000000
   720  001646  077600  000000  000000  TAB40:  .WORD   77600.0,0,0
   721  001654  000000
```

```
722  001656  100200  000000  000000  TAB41:  .WORD  100200,0,0,1
723  001664  000001
724  001666  000340  000000  000000  TAB42:  .WORD  340,0,0,0
725  001674  000000
726  001676  000077  177777  177777  TAB43:  .WORD  77,177777,177777,177776
727  001704  177776
728  001706  000577  177777  177777  TAB45:  .WORD  577,-1,-1,-1
729  001714  177777
730  001716  000577  177777  000000  TAB46:  .WORD  577,-1,0,0
731  001724  000000
732  001726  173737  124242  052525  TAB47:  .WORD  173737,124242,052525,12346
733  001734  012346
734  001736  000000  000000  052525  TAB47A: .WORD  0,0,052525,12346
735  001744  012346
736  001746  173737  124242  000000  TAB48:  .WORD  173737,124242,0,0
737  001754  000000
738  001756  000600  000000  000000  TAB49:  .WORD  600,0,0,0
739  001764  000000
```

```
                                        .SBTTL  GLOBAL TEXT SECTION

                                        ;++
                                        ; THE GLOBAL TEXT SECTION CONTAINS FORMAT STATEMENTS,
                                        ; MESSAGES, AND ASCII INFORMATION THAT ARE USED IN
                                        ; MORE THAN ONE TEST.
                                        ;--

                                        ;
                                        ; FORMAT STATEMENTS USED IN PRINT CALLS
                                        ;

001766  005015  040503  044103  ERRMSG::.ASCIZ  <CR><LF>/CACHE SYSTEM ERROR/
001774  020105  054523  052123
002002  046505  042440  051122
002010  051117     000
002013     015  042412  051122  FPPERR: .ASCIZ  <CR><LF>/ERROR DURING FPP TESTING/
002020  051117  042040  051125
002026  047111  020107  050106
002034  020120  042524  052123
002042  047111  000107
002046  005015  051105  047522  ERR1:   .ASCIZ  <CR><LF>/ERROR # =/
002054  020122  020043  000075
002062  005015  051105  047522  ERR2:   .ASCIZ  <CR><LF>/ERROR PC =/
002070  020122  041520  036440
002076     000
002077     015  020012  020040  $CRLF:  .ASCIZ  <CR><LF>/   /
002104     000
        002106                          .EVEN
```

```
                        .SBTTL  GLOBAL ERROR REPORT SECTION

                        ;++
                        ; THE GLOBAL ERROR REPORT SECTION CONTAINS MESSAGE PRINTING AREAS
                        ; USED BY MORE THAN TEST TO OUTPUT ADDITIONAL ERROR INFORMATION.
                        ;--
```

```
                        .SBTTL  GLOBAL SUBROUTINES SECTION

                        ;++
                        ; THE GLOBAL SUBROUTINES SECTION CONTAINS THE SUBROUTINES
                        ; THAT ARE USED IN MORE THAN ONE TEST.
                        ;--
                        ;FPP COMMON SUBROUTINES
002106  012600          WLDTRP: MOV     (SP)+,R0                ;SAVE PC
002110  012605                  MOV     (SP)+,R5                ;SAVE STATUS AND RESTORE STACK
002112  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
002114  000001                  .WORD   1                       ;UNIQUE ERROR NUMBER
002116  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
002120  000110                  JMP     (R0)                    ;GO BACK INLINE
                        ;
                        ;
                        ;
002122  000000          TRPFLG: .WORD   0
002124  000207          ERRFP:  RTS     R7
002126  000207          ERR:    RTS     R7
                        ;
                        ;
                        ;
                        ;
                        ;
                        ;SUBROUTINE DATA VERFICATION
                        ;
                        ; CALLED BY     JSR     R7,DATVER
                        ;
                        ;INPUT:         (R4)=EXPECTED DATA
                        ;               (R1)=RECEIVED DATA
                        ;
                        ;THIS ROUTINE VERIFIES THAT THE 4 CONSECTIVE WORDS STARTING WITH (R4) ARE
                        ;EQUAL TO THE FOUR WORDS ADDRESSED BY (R1). THE CONTENTS OF R4, AND R1 ARE NOT
                        ;DISTURBED.
                        ;LOCATION "COUNT" , IF NOT EQUAL TO 0 SIGNIFIES DATA ERROR
                        ;IF THE STATUS IS FLOATING MODE, THE LAST TWO BYTES OF RECEIEVED
                        ;ARE SIMPLY CHECKED FOR ZEROS
                        ;
002130  010446          DATVFR: MOV     R4,-(SP)                ;SAVE R4
002132  010146                  MOV     R1,-(SP)                ;SAVE R1
002134  012767  000003  176676          MOV     #3,COUNT        ;SET UP ITERATION COUNT
002142  000167  000012                  JMP     DAT1            ;
                        ;
002146  010446          DATVER: MOV     R4,-(SP)                ;SAVE R4
002150  010146                  MOV     R1,-(SP                 ;SAVE R1
002152  012767  000005  176660          MOV     #5,COUNT        ;SET UP ITERATION COUNT
002160  005367  176654  DAT1:   DEC     COUNT
002164  001402                  BEQ     2$                      ;BRANCH IF DONE
002166  022421                  CMP     (R4)+,(R1)+             ;
002170  001773                  BEQ     DAT1
002172  012601          2$:     MOV     (SP)+,R1                ;RESTORE R1
002174  012604                  MOV     (SP)+,R4                ;RESTORE R4
002176  000207                  RTS     R7                      ;GO BACK TO CALLING ROUTINE
                                                                ;IF DATA ERROR, COUNT NE 0
```

```
                                START:
002200                                  MOV     #14,@#CCR               ;SET CACHE TO FORCE MISS
                                .SBTTL  INITIALIZE THE COMMON TAGS
002206  012706  001000                  MOV     #STACK,SP       ;;SETUP THE STACK POINTER
                                ;;INITIALIZE A FEW VECTORS
002212  012737  040046  000030          MOV     #$ERROR,@#EMTVEC ;;EMT VECTOR FOR ERROR ROUTINE
002220  012737  000340  000032          MOV     #340,@#EMTVEC+2 ;;LEVEL 7
002226  012737  037530  000034          MOV     #$TRAP,@#TRAPVEC ;;TRAP VECTOR FOR TRAP CALLS
002234  012737  000340  000036          MOV     #340,@#TRAPVEC+2;LEVEL 7
002242  005067  176540                  CLR     $PASS           ;;CLEAR THE PASS COUNT
002246  016767  034056  034046          MOV     $ENDCT,$EOPCT   ;;SETUP END-OF-PROGRAM COUNTER
002254  105067  176572                  CLRB    $ERFLG          ;;CLEAR THE ERROR FLAG
                                ;;SIZE FOR A HARDWARE SWITCH REGISTER. IF NOT FOUND OR IT IS
                                ;;EQUAL TO A "-1", SETUP FOR A SOFTWARE SWITCH REGISTER.
002260  013746  000004                  MOV     @#ERRVEC,-(SP)  ;;SAVE ERROR VECTOR
002264  012737  002320  000004          MOV     #64$,@#ERRVEC   ;;SET UP ERROR VECTOR
002272  012767  177570  176546          MOV     #DSWR,SWR       ;;SETUP FOR A HARDWARE SWICH REGISTER
002300  012767  177570  176542          MOV     #DDISP,DISPLAY  ;;AND A HARDWARE DISPLAY REGISTER
002306  022777  177777  176532          CMP     #-1,@SWR        ;;TRY TO REFERENCE HARDWARE SWR
002314  001012                          BNE     66$             ;;BRANCH IF NO TIMEOUT TRAP OCCURRED
                                                                ;;AND  THE HARDWARE SWR IS NOT = -1
002316  000403                          BR      65$             ;;BRANCH IF NO TIMEOUT
002320  012716  002326          64$:    MOV     #65$,(SP)       ;;SET UP FOR TRAP RETURN
002324  000002                          RTI
002326  012767  000176  176512  65$:    MOV     #SWREG,SWR      ;;POINT TO SOFTWARE SWR
002334  012767  000174  176506          MOV     #DISPREG,DISPLAY
002342  012637  000004          66$:    MOV     (SP)+,@#ERRVEC  ;;RESTORE ERROR VECTOR

                                .MACRO  $$SETMAIL       ?$ARG1
                                        CLR     $PASS           ;;CLEAR PASS COUNT
                                        BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
                                        BEQ     $ARG1           ;;YES,USE NON-APT SWITCH
                                        MOV     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
                                $ARG1:
                                .ENDM   $$SETMAIL
002346  005067  176434                  CLR     $PASS           ;;CLEAR PASS COUNT
002352  132767  000200  176441          BITB    #APTSIZE,$ENVM  ;;TEST USER SIZE UNDER APT
002360  001403                          BEQ     67$             ;;YES,USE NON-APT SWITCH
002362  012767  001022  176456          MOV     #$SWREG,SWR     ;;NO,USE APT SWITCH REGISTER
002370                          67$:
002370  012737  040046  000020          MOV     #$ERROR,@#IOTVEC        ;;SET UP IOT VECTORS
002376  012737  000340  000022          MOV     #340,@#IOTVEC+2         ;;TO GO TO ERROR ROUTINE
002404  005037  177766                  CLR     @#177766                ;CLEAR CPU ERROR REGISTER
002410  005067  176370          RESTART: CLR    $TESTN                  ;RESET $TESTN TO ZERO
002414  012737  000014  177746          MOV     #14,@#CCR               ;SET CACHE TO FORCE MISS

                                ;*****************************************************************************
                                .SBTTL  FLOATING POINT TESTS
                                ;*****************************************************************************
                                ;                       BEGIN FLOATING POINT TESTING
                                ;*****************************************************************************
                                ;*****************************************************************************
002422                          MBT1:
                                ;;*************************************************************
                                ;*TEST 1         FPP REGISTER BIT TESTS
                                ;;*************************************************************
```

```
                                        ;R5=FPP POINTER
                                        ;R1=TEMPORARY COUNTER
                                        ;R2=POINTER TO EXPECTED DATA
                                        ;R3=POINTER TO RECEIVED DATA
                                        ;R4=ODD/EVEN COUNTER
                                        ;;*************************************************************************
002422                                  TST1:
002422  005267  176356                          INC     $TESTN                  ;INCREMENT TEST NUMBER
002426  170011                                  SETD
002430  005005                          MBT2:   CLR     R5                      ;SETUP FPP ACC POINTER
002432  012702  001066                          MOV     #BTEXP,R2               ;POINT TO TEST DATA
002436  012703  001076                          MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
002442  170400                          MBT2A:  CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002444  174012                                  STD     AC0,(R2)                ;CLEAR EXPECTED VALUE
002446  005004                                  CLR     R4
002450  170400                          BTG0:   CLRD    AC0                     ;SETUP FPP REGISTER VALUES
002452  170401                                  CLRD    AC1
002454  170402                                  CLRD    AC2
002456  170403                                  CLRD    AC3
002460  170404                                  CLRD    AC4
002462  170405                                  CLRD    AC5
                                        
002464  010501                                  MOV     R5,R1                   ;GET FPP AC NUMBER INTO R1
002466  070127  000014                          MUL     #14,R1                  ;ALLOW 10 LOCATIONS FOR OPERATION
002472  062701  002500                          ADD     #MAC0,R1                ;SETUP JMP LOCATION
002476  000111                                  JMP     (R1)
002500  172467  176362                  MAC0:   LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST REGISTER
002504  174067  176366                  MAC0A:  STD     AC0,BTRES               ;SAVE TEST RESULT
002510  000167  000074                          JMP     MACE                    ;GET OUT
002514  172567  176346                  MAC1:   LDD     BTEXP,AC1               ;LOAD TEST DATA INTO TEST REGISTER
002520  174167  176352                          STD     AC1,BTRES               ;SAVE TEST RESULT
002524  000167  000060                          JMP     MACE                    ;GET OUT
002530  172667  176332                  MAC2:   LDD     BTEXP,AC2               ;LOAD TEST DATA INTO TEST REGISTER
002534  174267  176336                          STD     AC2,BTRES               ;SAVE TEST RESULT
002540  000167  000044                          JMP     MACE                    ;GET OUT
002544  172767  176316                  MAC3:   LDD     BTEXP,AC3               ;LOAD TEST DATA INTO TEST REGISTER
002550  174367  176322                          STD     AC3,BTRES               ;SAVE TEST RESULT
002554  000167  000030                          JMP     MACE                    ;GET OUT
002560  172467  176302                  MAC4:   LDD     BTEXP,AC0
002564  174004                                  STD     AC0,AC4                 ;LOAD TEST DATA INTO TEST REGISTER
002566  172404                                  LDD     AC4,AC0                 ;SAVE TEST RESULT
002570  000167  177710                          JMP     MAC0A                   ;GET OUT
002574  172467  176266                  MAC5:   LDD     BTEXP,AC0               ;LOAD TEST DATA INTO TEST XFER REGISTER
002600  174005                                  STD     AC0,AC5                 ;LOAD TEST REGISTER
002602  172405                                  LDD     AC5,AC0                 ;STORE RESULT INTO XFER FPP REGISTER
002604  000167  177674                          JMP     MAC0A                   ;GET OUT
002610  026767  176252  176260    MACE:   CMP     BTEXP,BTRES
002616  001014                                  BNE     BTER                    ;BRANCH IF REGISTER ERROR
002620  026767  176244  176252                  CMP     BTEXP+2,BTRES+2
002626  001010                                  BNE     BTER
002630  026767  176236  176244                  CMP     BTEXP+4,BTRES+4
002636  001004                                  BNE     BTER
002640  026767  176230  176236                  CMP     BTEXP+6,BTRES+6
002646  001403                                  BEQ     MBT8                    ;GOOD RESULT
002650                                  BTER:
002650  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
                                .WORD   2                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;FPP AC LOADED INCORRECTLY
                        ;NOW VERIFY THE OTHER REGISTERS REMAINED ZERO
                        MBT8:
                                CLR     R1                      ;CLEAR TEMPORARY COUNTER
                                TST     R5                      ;SEE IF R0 UNDER TEST
                                BEQ     MBT8A                   ;BRANCH IF TEST ING R0
                                CMP     R5,#4                   ;SEE IF TESTING FPP REGISTER >R4
                                BPL     MBT8A                   ;SKIP R0 TESTING
                                STD     AC0,BTRES               ;SAVE AC TEST RESULT
                                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
                                BEQ     MBT8A                   ;BRANCH IF EXPECTED RESULT
                                ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                .WORD   3                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AC0
                        MBT8A:  CMP     R5,#1                   ;SEE IF R1 UNDER TEST
                                BEQ     MBT8B                   ;BRANCH IF R1 UNDER TEST
                                STD     AC1,BTRES               ;SAVE AC TEST RESULT
                                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
                                BEQ     MBT8B                   ;BRANCH IF GOOD
                                ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                .WORD   4                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AC1
                        MBT8B:  CMP     R5,#2                   ;SEE IF TESTING FPP REGISTER AC2
                                BEQ     MBT8C                   ;BRANCH IF R2 UNDER TEST
                                STD     AC2,BTRES               ;SAVE AC TEST RESULT
                                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
                                BEQ     MBT8C                   ;BRANCH IF GOOD
                                ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                .WORD   5                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AC2
                        MBT8C:  CMP     R5,#3                   ;SEE IF R3 UNDER TEST
                                BEQ     MBT8D                   ;BRANCH IF R3 UNDER TEST
                                STD     AC3,BTRES               ;SAVE AC TEST RESULT
                                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
                                BEQ     MBT8D                   ;BRANCH IF GOOD
                                ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                .WORD   6                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AC3
                        MBT8D:  CMP     R5,#4                   ;SEE IF R4 UNDER TEST
                                BEQ     MBT8E                   ;BRANCH IF R4 UNDER TEST
                                LDD     AC4,AC0                 ;MOVE REGISTER CONTENT
                                STD     AC0,BTRES               ;SAVE AC TEST RESULT
                                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
                                BEQ     MBT8E                   ;BRANCH IF GOOD
                                ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                .WORD   7                       ;UNIQUE ERROR NUMBER
                                .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                        ;BAD AC4
                        MBT8E:  CMP     R5,#5                   ;SEE IF R0 UNDER TEST
                                BEQ     MBT8F                   ;BRANCH IF R0 UNDER TEST
```

```
 999  003052  172405                        LDD     AC5,AC0                 ;MOVE REGISTER CONTENTS
1000  003054  174067  176016                STD     AC0,BTRES               ;SAVE AC TEST RESULT
1001  003060  004767  000064                JSR     R7,BTTST                ;VERIFY THAT CONTENTS REMAINED ZERO
1002  003064  001403                        BEQ     MBT8F                   ;BRANCH IF GOOD
1003  003066  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1004  003070  000010                        .WORD   10                      ;UNIQUE ERROR NUMBER
1005  003072  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1006                                                                  ;BAD AC5
1007  003074  005204            MBT8F:      INC     R4                      ;INCREMENT PATTERN COUNTER
1008  003076  000241                        CLC
1009  003100  042704  177776                BIC     #177776,R4              ; TEST FOR ODD /EVEN
1010  003104  001401                        BEQ     MBT8FG                  ;BRANCH IF EVEN
1011  003106  000261                        SEC                             ;SET CARRY FOR TEST PATTERN SHIFT
1012  003110  006112            MBT8FG:     ROL     (R2)                    ;ROTATE LSW OF TEST PATTERN
1013  003112  006162  000002                ROL     2(R2)                   ;ROTATE 2 WORD OF TEST PATTERN
1014  003116  006162  000004                ROL     4(R2)                   ;ROTATE 3 WORD OF TEST PATTERN
1015  003122  006162  000006                ROL     6(R2)                   ;ROTATE 4 WORD OF TEST PATTERN
1016  003126  103402                        BCS     MBT8I                   ;JUMP IF THROUGH WITH TEST PATTERN
1017  003130  000167  177314                JMP     BTGO                    ;CONTINUE WITH NEW TEST PATTERN
1018
1019  003134  005205            MBT8I:      INC     R5                  ;GO TO NEXT REGISTER TEST
1020  003136  020527  000006                CMP     R5,#6               ;SEE IF THROUGH TESTING
1021  003142  100016                        BPL     MBTE                ;JUMP IF THROUGH
1022  003144  000167  177272                JMP     MBT2A               ;CONTINUE TESTING WITH NEW PATTERN
1023                                      ;
1024                                      ;
1025  003150  005767  175722    BTTST:      TST     BTRES               ;VERIFY CONTENTS AS ZERO
1026  003154  001010                        BNE     BTTSTE              ;EXIT IF NOT ZERO
1027  003156  005767  175716                TST     BTRES+2             ;VERIFY CONTENTS AS ZERO
1028  003162  001005                        BNE     BTTSTE              ;EXIT IF NOT ZERO
1029  003164  005767  175712                TST     BTRES+4             ;VERIFY CONTENTS AS ZERO
1030  003170  001002                        BNE     BTTSTE              ;EXIT IF NOT ZERO
1031  003172  005767  175706                TST     BTRES+6             ;VERIFY CONTENTS AS ZERO
1032  003176  000207            BTTSTE:     RTS     R7                  ;GO BACK TO CALLING ROUTINE
1033
1034
1035                                              ;
1036                                              ;
1037  003200                    MBTE:
1038
1039                                      ;
1040  003200                    MFACU:
1041                                      ;;*****************************************************************
1042                                      ;*TEST 2        TEST UNIQUENESS OF FPP ACCUMULATORS
1043                                      ;;*****************************************************************
1044                                      ;THIS TEST LOADS UNIQUE PATTERNS INTO EACH ACCUMULATOR SIMULTANEOUSLY.
1045                                      ;R2=POINTER TO EXPECTED DATA
1046                                      ;R3=POINTER TO RECEIVED DATA
1047                                      ;;*****************************************************************
1048  003200                    TST2:
1049  003200  005267  175600                INC     #TESTN                  ;INCREMENT TEST NUMBER
1050                                              ;
1051                                              ;
1052                                              ;
1053  003204  170011                        SETD
1054  003206  005000            MFA:        CLR     R0                      ;SETUP FPP ACC POINTER
```

```
1055  003210  005004                          CLR     R4
1056  003212  012702  001066                  MOV     #BTEXP,R2               ;POINT TO TEST DATA
1057  003216  012703  001076                  MOV     #BTRES,R3               ;POINT TO RECEIVED DATA
1058  003222  012767  000051  175636          MOV     #51,BTEXP               ;SETUP EXPECTED DATA
1059  003230  012767  000052  175632          MOV     #52,BTEXP+2             ;
1060  003236  012767  000053  175626          MOV     #53,BTEXP+4             ;
1061  003244  012767  000054  175622          MOV     #54,BTEXP+6             ;
1062  003252  172467  175610                  LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1063  003256  174005                          STD     AC0,AC5                 ;PUT DATA INTO TEST REGISTER
1064  003260  004567  000240                  JSR     R5,SUBT                 ;SUBTRACT TEN FROM EACH EXPECTED DATA
1065  003264  172467  175576                  LDD     BTEXP,AC0               ;MOVE DATA TEMPORARILY
1066  003270  174004                          STD     AC0,AC4                 ;MOVE DATA INTO TEST REGISTER
1067  003272  004567  000226                  JSR     R5,SUBT                 ;SUBTRACT 10 FROM TEST DATA WORDS
1068  003276  172767  175564                  LDD     BTEXP,AC3               ;STORE INTO TEST REGISTER
1069  003302  004567  000216                  JSR     R5,SUBT                 ;GET NEXT SET OF UNIQUE DATA WORDS
1070  003306  172667  175554                  LDD     BTEXP,AC2               ;STORE INTO TEST REGISTER
1071  003312  004567  000206                  JSR     R5,SUBT                 ;GET NEXT SET OF TEST DATAS
1072  003316  172567  175544                  LDD     BTEXP,AC1               ;LOAD TEST REGISTER
1073  003322  004567  000176                  JSR     R5,SUBT                 ;GET NEXT SET OF TEST WORDS
1074  003326  172467  175534                  LDD     BTEXP,AC0               ;LOAD FINAL TEST REGISTER
1075                                                                          ;ALL REGISTER CONTAIN UNIQUE TEST WORDS
1076  003332  174067  175540                  STD     AC0,BTRES               ;STORE AC0,RESULT
1077  003336  004567  000246                  JSR     R5,BFA                  ;CHECK RESULT
1078  003342  001403                          BEQ     BFAC1                   ;BRANCH IF GOOD
1079  003344  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1080  003346  000011                          .WORD   11                      ;UNIQUE ERROR NUMBER
1081  003350  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1082                                                                  ;BAD AC0
1083  003352  004567  000200          BFAC1:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1084  003356  174167  175514                  STD     AC1,BTRES               ;STORE AC1 RESULT
1085  003362  004567  000222                  JSR     R5,BFA                  ;CHECK RESULT
1086  003366  001403                          BEQ     BFAC2                   ;BRANCH IF GOOD
1087  003370  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1088  003372  000012                          .WORD   12                      ;UNIQUE ERROR NUMBER
1089  003374  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1090                                                                  ;BAD RESULT AC1
1091  003376  004567  000154          BFAC2:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1092  003402  174267  175470                  STD     AC2,BTRES               ;STORE AC2 RESULT
1093  003406  004567  000176                  JSR     R5,BFA                  ;CHECK RESULT
1094  003412  001403                          BEQ     BFAC3                   ;BRANCH IF GOOD
1095  003414  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1096  003416  000013                          .WORD   13                      ;UNIQUE ERROR NUMBER
1097  003420  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1098                                                                  ;BAD AC2 RESLUT
1099  003422  004567  000130          BFAC3:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1100  003426  174367  175444                  STD     AC3,BTRES               ;SAVE TEST RESULT
1101  003432  004567  000152                  JSR     R5,BFA                  ;CHECK RESULT
1102  003436  001403                          BEQ     BFAC4                   ;BRANCH IF GOOD
1103  003440  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1104  003442  000014                          .WORD   14                      ;UNIQUE ERROR NUMBER
1105  003444  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1106                                                                  ;BAD AC3 RESULT
1107  003446  004567  000104          BFAC4:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1108  003452  172704                          LDD     AC4,AC3                 ;SAVE TEMPORARY
1109  003454  174367  175416                  STD     AC3,BTRES               ;STORE AC4 RESULT
1110  003460  004567  000124                  JSR     R5,BFA                  ;CHECK RESULT
```

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1111  003464  001403                        BEQ     BFAC5                   ;BRANCH IF GOOD
1112  003466  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1113  003470  000015                        .WORD   15                      ;UNIQUE ERROR NUMBER
1114  003472  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1115                                                                  ;BAD AC4 RESULT
1116  003474  004567  000056        BFAC5:  JSR     R5,ADDT                 ;UPDATE EXPECTED RESULT
1117  003500  172605                        LDD     AC5,AC2                 ;SAVE TEMPORARY COPY
1118  003502  174267  175370                STD     AC2,BTRES               ;MOVE AC5 RESULT
1119  003506  004567  000076                JSR     R5,BFA                  ;CHECK RESULT
1120  003512  001456                        BEQ     BFAE                    ;BRANCH IF GOOD
1121  003514  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1122  003516  000016                        .WORD   16                      ;UNIQUE ERROR NUMBER
1123  003520  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1124                                                                  ;BAD AC5 RESULT
1125  003522  000452                        BR      BFAE                    ;EXIT MODULE
1126
1127  003524  162767  000010  175334  SUBT: SUB     #10,BTEXP                       ;UPDATE EXPECTED CONTENTS
1128  003532  162767  000010  175330        SUB     #10,BTEXP+2                     ;UPDATE EXPECTED CONTENTS
1129  003540  162767  000010  175324        SUB     #10,BTEXP+4                     ;UPDATE EXPECTED CONTENTS
1130  003546  162767  000010  175320        SUB     #10,BTEXP+6                     ;UPDATE EXPECTED CONTENTS
1131  003554  000205                        RTS     R5                      ;
1132  003556  062767  000010  175302  ADDT: ADD     #10,BTEXP                       ;UPDATE EXPECTED CONTENTS
1133  003564  062767  000010  175276        ADD     #10,BTEXP+2                     ;UPDATE EXPECTED CONTENTS
1134  003572  062767  000010  175272        ADD     #10,BTEXP+4                     ;UPDATE EXPECTED CONTENTS
1135  003600  062767  000010  175266        ADD     #10,BTEXP+6                     ;UPDATE EXPECTED CONTENTS
1136  003606  000205                        RTS     R5                      ;
1137
1138  003610  026767  175252  175260  BFA:  CMP     BTEXP,BTRES             ;VERIFY CONTENTS
1139  003616  001013                        BNE     BFB                     ;EXIT IF NOT ZERO
1140  003620  026767  175244  175252        CMP     BTEXP+2,BTRES+2         ;VERIFY CONTENTS
1141  003626  001007                        BNE     BFB                     ;EXIT IF NOT ZERO
1142  003630  026767  175236  175244        CMP     BTEXP+4,BTRES+4         ;VERIFY CONTENTS
1143  003636  001003                        BNE     BFB                     ;EXIT IF NOT ZERO
1144  003640  026767  175230  175236        CMP     BTEXP+6,BTRES+6         ;VERIFY CONTENTS
1145  003646  000205                BFB:    RTS     R5                      ;GO BACK TO CALLING ROUTINE
1146
1147
1148  003650                        BFAE:
1149
1150
1151
1152  003650                        TSFP1:
1153                                ;;*********************************************************************
1154                                ;*TEST 3         TEST LDFPS AND STFPS MODE 0
1155                                ;;*********************************************************************
1156  003650                        TST3:
1157  003650  005267  175130               INC     $TESTN                  ;INCREMENT TEST NUMBER
1158  003654  005037  002122               CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1159  003660  012704  147757               MOV     #147757,R4              ;SETUP DATA TO BE LOADED
1160  003664  004767  000032               JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1161  003670  012704  105252               MOV     #105252,R4              ;SETUP DATA TO BE LOADED
1162  003674  004767  000022               JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1163  003700  012704  042505               MOV     #42505,R4               ;SETUP DATA TO BE LOADED
1164  003704  004767  000012               JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
1165  003710  005004                        CLR     R4                      ;SETUP DATA TO BE LOADED
1166  003712  004767  000004               JSR     PC,LOST                 ;LOAD AND STORE FPS WITH DATA
```

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1167
1168
1169  003716  000167  000020                ;
                                            JMP     FIN1
1170
1171  003722  170104                        ;
                                    LOST:   LDFPS   R4                      ;LOAD FPS WITH DATA
1172  003724  170201                        STFPS   R1                      ;LOAD R1 WITH (FPS)
1173  003726  020401                        CMP     R4,R1                   ;DID THE INSTRUCTIONS WORK
1174  003730  001403                        BEQ     1$                      ;YES GO ON
1175  003732  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1176  003734  000017                        .WORD   17                      ;UNIQUE ERROR NUMBER
1177  003736  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1178                                                              ;NO GO TO ERROR
1179  003740  000207                    1$: RTS     PC                      ;RETURN
1180  003742                            FIN1:
1181                                      ;
1182  003742                            TSFP2:
1183                                      ;;**********************************************************************
1184                                      ;*TEST 4         TEST CFCC
1185                                      ;;**********************************************************************
1186  003742                            TST4:
1187  003742  005267  175036                    INC     $TESTN                  ;INCREMENT TEST NUMBER
1188  003746  005037  002122                    CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1189  003752  012704  000017                    MOV     #17,R4                  ;SETUP DATA TO BE LOADED
1190  003756  004767  000032                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
1191  003762  012704  000012                    MOV     #12,R4                  ;SETUP DATA TO BE LOADED
1192  003766  004767  000022                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
1193  003772  012704  000005                    MOV     #5,R4                   ;SETUP DATA TO BE LOADED
1194  003776  004767  000012                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
1195  004002  005004                            CLR     R4                      ;SETUP DATA TO BE LOADED
1196  004004  004767  000004                    JSR     PC,TSF2                 ;LOAD FPS AND COPY CONDITION CODES TO PS
1197
1198
1199  004010  000167  000030                ;
                                            JMP     FIN2
1200
1201  004014  170104                        ;
                                    TSF2:   LDFPS   R4                      ;LOAD FPS
1202  004016  170000                        CFCC                            ;COPY CONDITION CODES TO PS
1203  004020  013701  177776                MOV     @#177776,R1             ;SAVE PS TO R1
1204  004024  042701  177760                BIC     #177760,R1              ;MASK OUT UNWANTED BITS
1205  004030  020401                        CMP     R4,R1                   ;WAS CONDITION CODE BITS TRANSFERRED
1206                                                                          ;CORRECTLY
1207  004032  001403                        BEQ     1$                      ;YES GO ON
1208  004034  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1209  004036  000020                        .WORD   20                      ;UNIQUE ERROR NUMBER
1210  004040  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1211                                                              ;NO GO TO ERROR
1212  004042  000207                    1$: RTS     PC                      ;RETURN
1213  004044                            FIN2:
1214                                      ;
1215  004044                            TSFP3:
1216                                      ;;**********************************************************************
1217                                      ;*TEST 5         TEST SETF, SETD, SETI, SETL
1218                                      ;;**********************************************************************
1219  004044                            TST5:
1220  004044  005267  174734                    INC     $TESTN                  ;INCREMENT TEST NUMBER
1221  004050  005037  002122                    CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1222  004054  012704  000200                    MOV     #200,R4                 ;SETUP DATA TO BE LOADED
```

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1223  004060  170104                        LDFPS   R4                      ;LOAD FPS
1224  004062  170001                        SETF                            ;MAKE FD=0
1225  004064  170201                        STFPS   R1                      ;STORE FPS
1226  004066  020127  000000                CMP     R1,#0                   ;IS FD=0
1227  004072  001403                        BEQ     1$                      ;YES GO ON
1228  004074  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1229  004076  000021                        .WORD   21                      ;UNIQUE ERROR NUMBER
1230  004100  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1231                                                                        ;NO GO TO ERROR
1232  004102  170011                1$:     SETD                            ;MAKE FD=1
1233  004104  170201                        STFPS   R1                      ;STORE FPS
1234  004106  020104                        CMP     R1,R4                   ;IS FD=1
1235  004110  001403                        BEQ     2$                      ;YES GO ON
1236  004112  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1237  004114  000022                        .WORD   22                      ;UNIQUE ERROR NUMBER
1238  004116  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1239                                                                        ;NO GO TO ERROR
1240  004120  012704  000100        2$:     MOV     #100,R4                 ;SETUP DATA TO BE LOADED
1241  004124  170104                        LDFPS   R4                      ;LOAD FPS
1242  004126  170002                        SETI                            ;MAKE FL=0
1243  004130  170201                        STFPS   R1                      ;STORE FPS
1244  004132  020127  000000                CMP     R1,#0                   ;IS FL=0
1245  004136  001403                        BEQ     3$                      ;YES GO ON
1246  004140  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1247  004142  000023                        .WORD   23                      ;UNIQUE ERROR NUMBER
1248  004144  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1249                                                                        ;NO GO TO ERROR
1250  004146  170012                3$:     SETL                            ;MAKE FL=1
1251  004150  170201                        STFPS   R1                      ;STORE FPS
1252  004152  020104                        CMP     R1,R4                   ;IS FL=1
1253  004154  001403                        BEQ     4$                      ;YES GO ON
1254  004156  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1255  004160  000024                        .WORD   24                      ;UNIQUE ERROR NUMBER
1256  004162  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1257                                                                        ;NO GO TO ERROR
1258  004164                        4$:
1259
1260                                  ;
1261  004164                        TSFP4:
1262                                  ;;*****************************************************************
1263                                  ;*TEST 6        TEST ILLEGAL OP CODES AND STST
1264                                  ;;*****************************************************************
1265  004164                        TST6:
1266  004164  005267  174614                INC     @TESTN                  ;INCREMENT TEST NUMBER
1267  004170  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1268  004174  012705  170003                MOV     #170003,R5              ;INIT OP CODE
1269  004200  013746  000244                MOV     @#244,-(SP)             ;SAVE FP VECTOR
1270  004204  012737  004340  000244        MOV     #ILLOP1,@#244           ;SETUP NEW VECTOR
1271  004212  013746  000004                MOV     @#4,-(SP)               ;SAVE TIME OUT VECTOR
1272  004216  012737  004424  000004        MOV     #TIMEOU,@#4             ;SETUP NEW VECTOR
1273  004224  013746  000010                MOV     @#10,-(SP)              ;SAVE ILLEGAL VECTOR
1274  004230  012737  004434  000010        MOV     #ILLOP2,@#10            ;SETUP NEW VECTOR
1275  004236  005003                D1:     CLR     R3                      ;
1276  004240  170103                        LDFPS   R3                      ;CLEAR FPS
1277  004242  005002                        CLR     R2                      ;
1278  004244  010537  004250                MOV     R5,@#D2                 ;SETUP THE ILLEGAL INST
```

```
1279  004250  000000            D2:     .WORD   0
1280  004252  170000            D3:     CFCC                    ;
1281  004254  005202                    INC     R2              ;MEMORY WORDS TO BE USED WITH
1282  004256  005202                    INC     R2              ;EXECUTION OF ILLEGAL OP CODE
1283  004260  170201                    STFPS   R1              ;
1284  004262  104000                    ERROR                   ;SAVE FPS
1285  004264  000025                    .WORD   25              ;ALL ERRORS TO TRAP TO EMT VECTOR
1286  004266  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
1287                                                            ;ADDRESS OF ERROR MESSAGE
                                                              ;GO TO ERROR
1288  004270  022705  170010    D4:     CMP     #170010,R5      ;COMPUTE NEXT OP CODE
1289  004274  001003                    BNE     D5              ;
1290  004276  012705  170013            MOV     #170013,R5      ;
1291  004302  000755                    BR      D1              ;
1292  004304  022705  170077    D5:     CMP     #170077,R5      ;
1293  004310  001001                    BNE     D6              ;
1294  004312  000402                    BR      D7              ;
1295  004314  005205            D6:     INC     R5              ;
1296  004316  000747                    BR      D1              ;
1297  004320  012637  000010    D7:     MOV     (SP)+,@#10      ;RESTORE VECTORS
1298  004324  012637  000004            MOV     (SP)+,@#4       ;
1299  004330  012637  000244            MOV     (SP)+,@#244     ;
1300
1301                              ;
1302  004334  000167  000104            JMP     FIN4
1303                              ;
1304  004340  022716  004252    ILLOP1: CMP     #D3,(SP)        ;DID TRAP OCCUR ON TEST INST
1305  004344  001403                    BEQ     1$              ;YES GO ON
1306  004346  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1307  004350  000026                    .WORD   26              ;UNIQUE ERROR NUMBER
1308  004352  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1309                                                          ;NO GO TO ERROR
1310  004354  022626            1$:     CMP     (SP)+,(SP)+     ;CLEAN UP STACK
1311  004356  170201                    STFPS   R1              ;STORE FPS
1312  004360  022701  100000            CMP     #100000,R1      ;IS FPS CORRECT
1313  004364  001403                    BEQ     2$              ;YES GO ON
1314  004366  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1315  004370  000027                    .WORD   27              ;UNIQUE ERROR NUMBER
1316  004372  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1317                                                          ;NO GO TO ERROR
1318  004374  005004            2$:     CLR     R4              ;INT R4 TO A KNOWN STATE
1319  004376  170304                    STST    R4              ;STORE FEC AT R4
1320                                                          ;IF THE DESTINATION MODE IS IMPROPERL
1321                                                          ;DECODED AN ODD ADDRESS TRAP TO 4
1322                                                          ;SHOULD OCCUR
1323  004400  022704  000002            CMP     #2,R4           ;IS FEC CORRECT
1324  004404  001002                    BNE     3$              ;NO GO TO ERROR
1325  004406  000167  177656            JMP     D4              ;YES GO ON
1326  004412                    3$:
1327  004412  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
1328  004414  000030                    .WORD   30              ;UNIQUE ERROR NUMBER
1329  004416  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
1330                                                          ;GO TO ERROR
1331  004420  000167  177644            JMP     D4              ;THEN GO ON
1332
1333  004424                    ;
1334  004424  104000            TIMEOU: ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
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```
1335  004426  000031                          .WORD   31                      ;UNIQUE ERROR NUMBER
1336  004430  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1337                                                                  ;ERROR BECAUSE OF TRAP TO 4
1338  004432  000006                          RTT                             ;RETURN
1339                                  ;
1340  004434                          ILLOP2:
1341  004434  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1342  004436  000032                          .WORD   32                      ;UNIQUE ERROR NUMBER
1343  004440  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1344                                                                  ;ERROR BECAUSE OF TRAP TO 10
1345  004442  000006                          RTT                             ;RETURN
1346  004444                          FIN4:
1347                                  ;
1348  004444                          TSFP5:
1349                                  ;;**************************************************************
1350                                  ;*TEST 7         TEST FID (INTERRUPT DISABLE BIT)
1351                                  ;;**************************************************************
1352  004444                          TST7:
1353  004444  005267  174334                  INC     $TESTN                  ;INCREMENT TEST NUMBER
1354  004450  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1355  004454  013746  000244                  MOV     @#244,-(SP)             ;SAVE FP VECTOR
1356  004460  012737  004544  000244          MOV     #ILL,@#244              ;SETUP NEW VECTOR
1357  004466  012703  040000                  MOV     #40000,R3               ;SETUP DATA TO BE LOADED
1358  004472  170103                          LDFPS   R3                      ;LOAD FPS, FID=1
1359  004474  170020                          .WORD   170020                  ;ILLEGAL FP INSTRUCTION
1360  004476  170000                          CFCC
1361  004500  170201                          STFPS   R1                      ;SEE IF ERROR WAS RECORDED IN FPS
1362  004502  022701  140000                  CMP     #140000,R1              ;
1363  004506  001403                          BEQ     1$                      ;YES GO ON
1364  004510  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1365  004512  000033                          .WORD   33                      ;UNIQUE ERROR NUMBER
1366  004514  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1367                                                                  ;NO GO TO ERROR
1368  004516  170304                  1$:     STST    R4                      ;SEE IF FEC=2
1369  004520  022704  000002                  CMP     #2,R4                   ;
1370  004524  001403                          BEQ     2$                      ;YES GO ON
1371  004526  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1372  004530  000034                          .WORD   34                      ;UNIQUE ERROR NUMBER
1373  004532  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1374                                                                  ;NO GO TO ERROR
1375  004534  012637  000244          2$:     MOV     (SP)+,@#244             ;RESTORE VECTOR
1376
1377                                  ;
1378  004540  000167  000010                  JMP     FIN5
1379                                  ;
1380  004544                          ILL:
1381  004544  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1382  004546  000035                          .WORD   35                      ;UNIQUE ERROR NUMBER
1383  004550  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1384                                                                  ;FID ERROR
1385  004552  000006                          RTT                             ;RETURN
1386  004554                          FIN5:
1387                                  ;
1388  004554                          TSFP6:
1389                                  ;;**************************************************************
1390                                  ;*TEST 10        TEST LDD, STD FSRC AND FDST MODE 1
```

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1391                                    ;;*****************************************************************
1392  004554                            TST10:
1393  004554  005267  174224                  INC     $TESTN                  ;INCREMENT TEST NUMBER
1394  004560  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1395  004564  005004                          CLR     R4                      ;SETUP TO LOAD DATA
1396  004566  170104                          LDFPS   R4                      ;CLEAR FPS
1397  004570  170011                          SETD                            ;SET FD TO 1
1398  004572  013746  000004                  MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1399  004576  012737  004750  000004          MOV     #TSF6,@#4               ;SETUP NEW VECTOR
1400  004604  012704  004740                  MOV     #TS6DAT,R4              ;SETUP POINTER TO DATA
1401  004610  172414                          LDD     (R4),AC0                ; TEST INSTRUCTION
1402  004612  020427  004740                  CMP     R4,#TS6DAT              ;IS R4 CORRECT
1403  004616  001403                          BEQ     1$                      ;YES GO ON
1404  004620  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1405  004622  000036                          .WORD   36                      ;UNIQUE ERROR NUMBER
1406  004624  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1407                                                                  ;NO GO TO ERROR
1408  004626  012701  004730          1$:     MOV     #TS6DA,R1               ;SETUP POINTER TO DATA
1409  004632  012703  000004                  MOV     #4,R3                   ;INIT COUNTER
1410  004636  022421                  2$:     CMP     (R4)+,(R1)+             ;WAS SOURCE DATA ALTERED
1411  004640  001403                          BEQ     3$                      ;NO GO ON
1412  004642  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1413  004644  000037                          .WORD   37                      ;UNIQUE ERROR NUMBER
1414  004646  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1415                                                                  ;YES GO TO ERROR
1416  004650  077306                  3$:     SOB     R3,2$                   ;ARE WE DONE
1417  004652  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER FOR DATA
1418  004656  174014                          STD     AC0,(R4)                ; TEST INSTRUCTION
1419  004660  020427  001136                  CMP     R4,#TSTLOC                      ;IS R4 CORRECT
1420  004664  001403                          BEQ     4$                      ;YES GO ON
1421  004666  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1422  004670  000040                          .WORD   40                      ;UNIQUE ERROR NUMBER
1423  004672  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1424                                                                  ;NO GO TO ERROR
1425  004674  012701  004730          4$:     MOV     #TS6DA,R1               ;SETUP POINTER TO DATA
1426  004700  012703  000004                  MOV     #4,R3                   ;INIT COUNTER
1427  004704  022421                  5$:     CMP     (R4)+,(R1)+             ;IS DESTINATION DATA CORRECT
1428  004706  001403                          BEQ     6$                      ;YES GO ON
1429  004710  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1430  004712  000041                          .WORD   41                      ;UNIQUE ERROR NUMBER
1431  004714  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1432                                                                  ;NO GO TO ERROR
1433  004716  077306                  6$:     SOB     R3,5$                   ;ARE WE DONE
1434  004720  012637  000004                  MOV     (SP)+,@#4               ;RESTORE VECTOR
1435
1436                                    ;
1437  004724  000167  000030                  JMP     FIN6
1438                                  ;
1439  004730  177777                  TS6DA:  .WORD   177777
1440  004732  000000                          .WORD   000000
1441  004734  052525                          .WORD   052525
1442  004736  125252                          .WORD   125252
1443  004740  177777                  TS6DAT: .WORD   177777
1444  004742  000000                          .WORD   000000
1445  004744  052525                          .WORD   052525
1446  004746  125252                          .WORD   125252
```

```
1447
1448  004750                                  ;
1449  004750  104000                         TSF6:
1450  004752  000042                                 ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1451  004754  002013                                 .WORD   42                      ;UNIQUE ERROR NUMBER
1452                                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1453  004756  000006                                                          ;ODD ADDRESS TRAP
1454  004760                                          RTT                             ;RETURN
1455                                          FIN6:
1456  004760                                  ;
1457                                          TSFP7:
1458                                          ;;*****************************************************************
1459                                          ;*TEST 11        TEST LDD, LDF FSRC MODE 0
1460  004760                                  ;;*****************************************************************
1461  004760  005267  174020                 TST11:
1462  004764  005037  002122                         INC     $TESTN                  ;INCREMENT TEST NUMBER
1463  004770  012704  000200                         CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1464  004774  170104                                 MOV     #200,R4                 ;SETUP TO LOAD FPS
1465  004776  013746  000004                         LDFPS   R4                      ;LOAD FPS, FD=1
1466  005002  012737  005154  000004                 MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1467  005010  012704  005164                         MOV     #TSF7,@#4               ;SETUP NEW VECTOR
1468  005014  172414                                 MOV     #TS7DA1,R4              ;SETUP POINTER TO DATA
1469  005016  012701  005174                         LDD     (R4),AC0                ;CLEAR AC0
1470  005022  172511                                 MOV     #TS7DA2,R1              ;SETUP POINTER TO DATA
1471  005024  172401                                 LDD     (R1),AC1                ;LOAD AC1 WITH DATA
1472  005026  012704  001136                         LDD     AC1,AC0                 ; TEST INSTRUCTION
1473  005032  174114                                 MOV     #TSTLOC,R4              ;
1474  005034  004767  000072                         STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1475  005040  012704  001136                         JSR     PC,CHECK7               ;
1476  005044  012701  005174                         MOV     #TSTLOC,R4                      ;SETUP POINTERS FOR DATA
1477  005050  174014                                 MOV     #TS7DA2,R1              ;
1478  005052  004767  000054                         STD     AC0,(R4)                ;CHECK IF AC0 RECEIVED CORRECT DATA
1479  005056  012701  005164                         JSR     PC,CHECK7               ;
1480  005062  172511                                 MOV     #TS7DA1,R1              ;SETUP POINTER TO DATA
1481  005064  170001                                 LDD     (R1),AC1                ;CLEAR AC1
1482  005066  172401                                 SETF                            ;SET FD=0
1483  005070  170011                                 LDF     AC1,AC0                 ; TEST INSTRUCTION
1484  005072  012704  001136                         SETD                            ;SET FD=1
1485  005076  174114                                 MOV     #TSTLOC,R4              ;SETUP POINTER TO DATA
1486  005100  004767  000026                         STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1487  005104  012704  005204                         JSR     PC,CHECK7               ;
1488  005110  012701  001136                         MOV     #TS7DA4,R4              ;SETUP POINTERS FOR DATA
1489  005114  174011                                 MOV     #TSTLOC,R1                      ;
1490  005116  004767  000010                         STD     AC0,(R1)                ;CHECK IF AC0 HAS CORRECT DATA
1491  005122  012637  000004                         JSR     PC,CHECK7               ;
1492                                                  MOV     (SP)+,@#4               ;RESTORE VECTOR
1493
1494  005126  000167  000062                 ;       JMP     FIN7
1495                                          ;
1496  005132  012703  000004                 CHECK7: MOV     #4,R3                   ;INIT COUNTER
1497  005136  022421                          CHEK7:  CMP     (R4)+,(R1)+             ;IS DATA OK
1498  005140  001403                                 BEQ     CHK7                    ;YES GO ON
1499  005142  104000                                 ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1500  005144  000043                                 .WORD   43                      ;UNIQUE ERROR NUMBER
1501  005146  002013                                 .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1502                                                                          ;NO GO TO ERROR
```

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1503  005150  077306                CHK7:   SOB     R3,CHEK7                ;ARE WE DONE
1504  005152  000207                        RTS     PC                      ;YES RETURN
1505                                ;
1506  005154                        TSF7:
1507  005154  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1508  005156  000044                        .WORD   44                      ;UNIQUE ERROR NUMBER
1509  005160  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1510                                                                ;ODD ADDRESS TRAP
1511  005162  000006                        RTT                             ;RETURN
1512                                ;
1513  005164  000000                TS7DA1: .WORD   0
1514  005166  000000                        .WORD   0
1515  005170  000000                        .WORD   0
1516  005172  000000                        .WORD   0
1517  005174  037641                TS7DA2: .WORD   37641
1518  005176  065121                        .WORD   65121
1519  005200  037373                        .WORD   37373
1520  005202  022265                        .WORD   22265
1521  005204  000000                TS7DA4: .WORD   0
1522  005206  000000                        .WORD   0
1523  005210  037373                        .WORD   37373
1524  005212  022265                        .WORD   22265
1525  005214                        FIN7:
1526                                ;
1527  005214                        TSFP10:
1528                                ;;**********************************************************************
1529                                ;*TEST 12        TEST STD, STF FDST MODE 0
1530                                ;;**********************************************************************
1531  005214                        TST12:
1532  005214  005267  173564                INC     @#TESTN                 ;INCREMENT TEST NUMBER
1533  005220  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1534  005224  012704  000200                MOV     #200,R4                 ;SETUP TO LOAD FPS
1535  005230  170104                        LDFPS   R4                      ;LOAD FPS, FD=1
1536  005232  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1537  005236  012737  005410  000004        MOV     #TSF10,@#4              ;SETUP NEW VECTOR
1538  005244  012704  005420                MOV     #TS10D1,R4              ;SETUP POINTER TO DATA
1539  005250  172414                        LDD     (R4),AC0                ;CLEAR AC0
1540  005252  012701  005430                MOV     #TS10D2,R1              ;SETUP POINTER TO DATA
1541  005256  172511                        LDD     (R1),AC1                ;LOAD AC1 WITH DATA
1542  005260  174100                        STD     AC1,AC0                 ; TEST INSTRUCTION
1543  005262  012704  001136                MOV     #TSTLOC,R4              ;
1544  005266  174114                        STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1545  005270  004767  000072                JSR     PC,CHEC10               ;
1546  005274  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTERS FOR DATA
1547  005300  012701  005430                MOV     #TS10D2,R1              ;
1548  005304  174014                        STD     AC0,(R4)                ;CHECK IF AC0 RECEIVED CORRECT DATA
1549  005306  004767  000054                JSR     PC,CHEC10               ;
1550  005312  012701  005420                MOV     #TS10D1,R1              ;SETUP POINTER TO DATA
1551  005316  172511                        LDD     (R1),AC1                ;CLEAR AC1
1552  005320  170001                        SETF                            ;SET FD=0
1553  005322  174100                        STF     AC1,AC0                 ; TEST INSTRUCTION
1554  005324  170011                        SETD                            ;SET FD=1
1555  005326  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO DATA
1556  005332  174114                        STD     AC1,(R4)                ;CHECK IF AC1 HAS BEEN ALTERED
1557  005334  004767  000026                JSR     PC,CHEC10               ;
1558  005340  012704  005440                MOV     #TS10D4,R4              ;SETUP POINTERS FOR DATA
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1559  005344  012701  001136          MOV     #TSTLOC,R1              ;
1560  005350  174011                  STD     AC0,(R1)                ;CHECK IF AC0 HAS CORRECT DATA
1561  005352  004767  000010          JSR     PC,CHEC10               ;
1562  005356  012637  000004          MOV     (SP)+,@#4               ;RESTORE VECTOR
1563
1564                                   ;
1565  005362  000167  000062          JMP     FIN10
1566                                   ;
1567  005366  012703  000004  CHEC10: MOV     #4,R3                   ;INIT COUNTER
1568  005372  022421           CH10:   CMP     (R4)+,(R1)+             ;IS DATA OK
1569  005374  001403                  BEQ     CHK10                   ;YES GO ON
1570  005376  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1571  005400  000045                  .WORD   45                      ;UNIQUE ERROR NUMBER
1572  005402  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1573                                                           ;NO GO TO ERROR
1574  005404  077306           CHK10:  SOB     R3,CH10                 ;ARE WE DONE
1575  005406  000207                  RTS     PC                      ;YES RETURN
1576
1577  005410                   TSF10:
1578  005410  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1579  005412  000046                  .WORD   46                      ;UNIQUE ERROR NUMBER
1580  005414  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1581                                                           ;ODD ADDRESS TRAP
1582  005416  000006                  RTT                             ;
1583
1584  005420  000000           TS10D1: .WORD   0
1585  005422  000000                  .WORD   0
1586  005424  000000                  .WORD   0
1587  005426  000000                  .WORD   0
1588  005430  177777           TS10D2: .WORD   177777
1589  005432  111236                  .WORD   111236
1590  005434  100045                  .WORD   100045
1591  005436  003651                  .WORD   3651
1592  005440  000000           TS10D4: .WORD   0
1593  005442  000000                  .WORD   0
1594  005444  100045                  .WORD   100045
1595  005446  003651                  .WORD   3651
1596  005450                   FIN10:
1597
1598  005450                   TSFP11:
1599                           ;;*****************************************************************
1600                           ;*TEST 13       TEST FDST SINGLE OPERAND MODE 0
1601                           ;;*****************************************************************
1602  005450                   TST13:
1603  005450  005267  173330          INC     $TESTN                  ;INCREMENT TEST NUMBER
1604  005454  005037  002122          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1605  005460  012704  000200          MOV     #200,R4                 ;SETUP TO LOAD FPS
1606  005464  170104                  LDFPS   R4                      ;SET FD=1
1607  005466  012704  005550          MOV     #TS11D1,R4              ;SETUP POINTER TO DATA
1608  005472  172414                  LDD     (R4),AC0                ;LOAD ALL ONES TO AC0
1609  005474  170400                  CLRD    AC0                     ; TEST INSTRUCTION
1610  005476  170203                  STFPS   R3                      ;GET FPS
1611  005500  012704  001136          MOV     #TSTLOC,R4              ;
1612  005504  174014                  STD     AC0,(R4)                ;CHECK AC0 FOR ALL ZEROES
1613  005506  012701  000004          MOV     #4,R1                   ;INIT COUNTER
1614  005512  022427  000000  1$:     CMP     (R4)+,#0                ;
```

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1615  005516  001403                        BEQ     2$                      ;OK GO ON
1616  005520  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1617  005522  000047                        .WORD   47                      ;UNIQUE ERROR NUMBER
1618  005524  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1619                                                                ;NO GO TO ERROR
1620  005526  077107              2$:       SOB     R1,1$                   ;ARE WE DONE
1621  005530  020327  000204              CMP     R3,#0204                ;CHECK FPS
1622  005534  001403                        BEQ     3$                      ;OK GO ON
1623  005536  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1624  005540  000050                        .WORD   50                      ;UNIQUE ERROR NUMBER
1625  005542  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1626                                                                ;NO GO TO ERROR
1627  005544              3$:
1628
1629                                        ;
1630  005544  000167  000010              JMP     FIN11
1631                                        ;
1632  005550  177777              TS11D1: .WORD   177777
1633  005552  177777                      .WORD   177777
1634  005554  177777                      .WORD   177777
1635  005556  177777                      .WORD   177777
1636  005560                      FIN11:
1637                                        ;
1638  005560                      TSFP12:
1639                                        ;;*****************************************************************
1640                                        ;*TEST 14       TEST FDST SOP MODE 0 WITH ILLEGAL AC7
1641                                        ;;*****************************************************************
1642  005560                      TST14:
1643  005560  005267  173220              INC     $TESTN                  ;INCREMENT TEST NUMBER
1644  005564  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1645  005570  012703  040200              MOV     #040200,R3              ;SETUP TO LOAD FPS
1646  005574  170103                      LDFPS   R3                      ;SET FID=1, AND FD=1
1647  005576  170407                      CLRD    AC7                     ; TEST INSTRUCTION
1648  005600  170204                      STFPS   R4                      ;GET FPS
1649  005602  170305                      STST    R5                      ;GET FEC
1650  005604  022704  140200              CMP     #140200,R4              ;IS FPS CORRECT
1651  005610  001403                      BEQ     1$                      ;YES GO ON
1652  005612  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1653  005614  000051                      .WORD   51                      ;UNIQUE ERROR NUMBER
1654  005616  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1655                                                                ;NO GO TO ERROR
1656  005620  022705  000002      1$:     CMP     #2,R5                   ;IS FEC CORRECT
1657  005624  001403                      BEQ     2$                      ;YES GO ON
1658  005626  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1659  005630  000052                      .WORD   52                      ;UNIQUE ERROR NUMBER
1660  005632  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1661                                                                ;NO GO TO ERROR
1662  005634              2$:
1663
1664                                        ;
1665  005634                      TSFP13:
1666                                        ;;*****************************************************************
1667                                        ;*TEST 15       TEST FDST SOP MODE 1
1668                                        ;;*****************************************************************
1669  005634                      TST15:
1670  005634  005267  173144              INC     $TESTN                  ;INCREMENT TEST NUMBER
```

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1671  005640  013746  000004          MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1672  005644  012737  005774  000004  MOV     #TSF13,@#4              ;SETUP NEW VECTOR
1673  005652  005037  002122          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1674  005656  012702  000200          MOV     #200,R2                 ;SETUP TO LOAD FPS
1675  005662  170102                  LDFPS   R2                      ;SET FD=1
1676  005664  012705  000004          MOV     #4,R5                   ;INIT COUNTER
1677  005670  012704  001136          MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
1678  005674  012724  177777  100$:   MOV     #177777,(R4)+           ;MOVE ALL ONES TO TEST LOCATION
1679  005700  077503                  SOB     R5,100$                 ;ARE WE DONE
1680  005702  012702  001136          MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1681  005706  170412                  CLRD    (R2)                    ; TEST INSTRUCTION
1682  005710  170203                  STFPS   R3                      ;GET FPS
1683  005712  020227  001136          CMP     R2,#TSTLOC                      ;WAS R2 ALTERED
1684  005716  001403                  BEQ     1$                      ;NO GO ON
1685  005720  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1686  005722  000053                  .WORD   53                      ;UNIQUE ERROR NUMBER
1687  005724  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1688                                                          ;YES GO TO ERROR
1689  005726  012701  000004  1$:     MOV     #4,R1                   ;INIT COUNTER
1690  005732  022227  000000  2$:     CMP     (R2)+,#0                ;CHECK LOCATION FOR 0
1691  005736  001403                  BEQ     3$                      ;OK GO ON
1692  005740  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1693  005742  000054                  .WORD   54                      ;UNIQUE ERROR NUMBER
1694  005744  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1695                                                          ;NO GO TO ERROR
1696  005746  077107          3$:     SOB     R1,2$                   ;ARE WE DONE
1697  005750  020327  000204          CMP     R3,#204                 ;CHECK FPS
1698  005754  001403                  BEQ     4$                      ;OK GO ON
1699  005756  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1700  005760  000055                  .WORD   55                      ;UNIQUE ERROR NUMBER
1701  005762  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1702                                                          ;NO GO TO ERROR
1703  005764  012637  000004  4$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1704
1705                                  ;
1706  005770  000167  000010          JMP     FIN13
1707                                  ;
1708  005774                  TSF13:
1709  005774  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1710  005776  000056                  .WORD   56                      ;UNIQUE ERROR NUMBER
1711  006000  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1712                                                          ;ODD ADDRESS TRAP
1713  006002  000006                  RTT                             ;RETURN
1714                                  ;
1715  006004                  FIN13:
1716                                  ;
1717  006004                  TSFP14:
1718                                  ;;*****************************************************************
1719                                  ;*TEST 16        TEST FDST SOP MODE 2
1720                                  ;;*****************************************************************
1721  006004                  TST16:
1722  006004  005267  172774          INC     $TESTN                  ;INCREMENT TEST NUMBER
1723  006010  013746  000004          MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1724  006014  012737  006150  000004  MOV     #TSF14,@#4              ;SETUP NEW VECTOR
1725  006022  005037  002122          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1726  006026  012702  000200          MOV     #200,R2                 ;SETUP TO LOAD FPS
```

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1727  006032  170102                          LDFPS   R2                      ;SET FD=1
1728  006034  012705  000004                  MOV     #4,R5                   ;INIT COUNTER
1729  006040  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
1730  006044  012724  177777          100$:   MOV     #177777,(R4)+           ;MOVE ALL ONES TO TEST LOCATION
1731  006050  077503                          SOB     R5,100$                 ;ARE WE DONE
1732  006052  012702  001136                  MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1733  006056  170422                          CLRD    (R2)+                   ; TEST INSTRUCTION
1734  006060  170203                          STFPS   R3                      ;GET FPS
1735  006062  020227  001146                  CMP     R2,#TSTLOC+10                   ;IS R2 CORRECT
1736  006066  001403                          BEQ     1$                      ;YES GO ON
1737  006070  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1738  006072  000057                          .WORD   57                      ;UNIQUE ERROR NUMBER
1739  006074  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1740                                                                  ;NO GO TO ERROR
1741  006076  012702  001136          1$:     MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1742  006102  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
1743  006106  022227  000000          2$:     CMP     (R2)+,#0                ;CHECK LOCATION FOR 0
1744  006112  001403                          BEQ     3$                      ;YES GO ON
1745  006114  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1746  006116  000060                          .WORD   60                      ;UNIQUE ERROR NUMBER
1747  006120  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1748                                                                  ;NO GO TO ERROR
1749  006122  077107                  3$:     SOB     R1,2$                   ;ARE WE DONE
1750  006124  020327  000204                  CMP     R3,#204                 ;CHECK FPS
1751  006130  001403                          BEQ     4$                      ;OK GO ON
1752  006132  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1753  006134  000061                          .WORD   61                      ;UNIQUE ERROR NUMBER
1754  006136  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1755                                                                  ;NO GO TO ERROR
1756  006140  012637  000004          4$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1757
1758                                  ;
1759  006144  000167  000010                  JMP     FIN14
1760                                  ;
1761  006150                          TSF14:
1762  006150  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1763  006152  000062                          .WORD   62                      ;UNIQUE ERROR NUMBER
1764  006154  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1765                                                                  ;ODD ADDRESS TRAP
1766  006156  000006                          RTT                             ;RETURN
1767                                  ;
1768  006160                          FIN14:
1769                                  ;
1770  006160                          TSFP15:
1771                                  ;;*****************************************************************
1772                                  ;*TEST 17       TEST FDST SOP MODE 3
1773                                  ;;*****************************************************************
1774  006160                          TST17:
1775  006160  005267  172620                  INC     @TESTN                  ;INCREMENT TEST NUMBER
1776  006164  013746  000004                  MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1777  006170  012737  006370  000004          MOV     #TSF15,@#4              ;SETUP NEW VECTOR
1778  006176  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1779  006202  012702  000200                  MOV     #200,R2                 ;SETUP TO LOAD FPS
1780  006206  170102                          LDFPS   R2                      ;SET FD=1
1781  006210  012705  000011                  MOV     #9.,R5                  ;INIT COUNTER
1782  006214  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
```

```
1783  006220  012724  177777          100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
1784  006224  077503                          SOB     R5,100$                 ;ARE WE DONE
1785  006226  012737  001150  001136          MOV     #TSTLOC+12,@#TSTLOC             ;INIT TEST LOCATION
1786  006234  012702  001136                  MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
1787  006240  170432                          CLRD    @(R2)+                  ; TEST INSTRUCTION
1788  006242  170203                          STFPS   R3                      ;GET FPS
1789  006244  020227  001140                  CMP     R2,#TSTLOC+2                    ;IS R2 CORRECT
1790  006250  001403                          BEQ     1$                      ;YES GO ON
1791  006252  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1792  006254  000063                          .WORD   63                      ;UNIQUE ERROR NUMBER
1793  006256  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1794                                                                  ;NO GO TO ERROR
1795  006260  012702  001136          1$:     MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1796  006264  022227  001150                  CMP     (R2)+,#TSTLOC+12                ;IS DATA CORRECT
1797  006270  001403                          BEQ     2$                      ;YES GO ON
1798  006272  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1799  006274  000064                          .WORD   64                      ;UNIQUE ERROR NUMBER
1800  006276  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1801                                                                  ;NO GO TO ERROR
1802  006300  012701  000004          2$:     MOV     #4,R1                   ;INIT COUNTER
1803  006304  022227  177777          3$:     CMP     (R2)+,#177777           ;IS LOCATION ALL ONES
1804  006310  001403                          BEQ     4$                      ;YES GO ON
1805  006312  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1806  006314  000065                          .WORD   65                      ;UNIQUE ERROR NUMBER
1807  006316  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1808                                                                  ;NO GO TO ERROR
1809  006320  077107                  4$:     SOB     R1,3$                   ;ARE WE DONE
1810  006322  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
1811  006326  022227  000000          5$:     CMP     (R2)+,#0                ;IS LOCATION 0
1812  006332  001403                          BEQ     6$                      ;YES GO ON
1813  006334  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1814  006336  000066                          .WORD   66                      ;UNIQUE ERROR NUMBER
1815  006340  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1816                                                                  ;NO GO TO ERROR
1817  006342  077107                  6$:     SOB     R1,5$                   ;ARE WE DONE
1818  006344  020327  000204                  CMP     R3,#0204                ;CHECK FPS
1819  006350  001403                          BEQ     7$                      ;OK GO ON
1820  006352  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1821  006354  000067                          .WORD   67                      ;UNIQUE ERROR NUMBER
1822  006356  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1823                                                                  ;NO GO TO ERROR
1824  006360  012637  000004          7$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1825
1826                                  ;
1827  006364  000167  000010                  JMP     FIN15
1828                                  ;
1829  006370                          TSF15:
1830  006370  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1831  006372  000070                          .WORD   70                      ;UNIQUE ERROR NUMBER
1832  006374  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1833                                                                  ;ODD ADDRESS TRAP
1834  006376  000006                          RTT                             ;RETURN
1835                                  ;
1836  006400                          FIN15:
1837                                  ;
1838  006400                          TSFP16:
```

```
                                ;;*****************************************************************
                                ;*TEST 20       TEST FDST SOP MODE 4
                                ;;*****************************************************************
006400                          TST20:
006400  005267  172400                  INC     @TESTN                  ;INCREMENT TEST NUMBER
006404  013746  000004                  MOV     @04,-(SP)               ;SAVE TIMEOUT VECTOR
006410  012737  006562  000004          MOV     #TSF16,@04              ;SETUP NEW VECTOR
006416  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
006422  012702  000200                  MOV     #200,R2                 ;SETUP TO LOAD FPS
006426  170102                          LDFPS   R2                      ;SET FD=1
006430  012705  000010                  MOV     #8.,R5                  ;INIT COUNTER
006434  012704  001136                  MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
006440  012724  177777          100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
006444  077503                          SOB     R5,100$                 ;ARE WE DONE
006446  012702  001146                  MOV     #TSTLOC+10,R2                   ;SETUP POINTER TO DATA
006452  170442                          CLRD    -(R2)                   ; TEST INSTRUCTION
006454  170203                          STFPS   R3                      ;GET FPS
006456  020227  001136                  CMP     R2,#TSTLOC                      ;IS R2 CORRECT
006462  001403                          BEQ     1$                      ;YES GO ON
006464  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006466  000071                          .WORD   71                      ;UNIQUE ERROR NUMBER
006470  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
006472  012701  000004          1$:     MOV     #4,R1                   ;INIT COUNTER
006476  022227  000000          2$:     CMP     (R2)+,#0                ;IS LOCATION 0
006502  001403                          BEQ     3$                      ;YES GO ON
006504  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006506  000072                          .WORD   72                      ;UNIQUE ERROR NUMBER
006510  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
006512  077107          3$:     SOB     R1,2$                   ;ARE WE DONE
006514  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
006520  022227  177777          4$:     CMP     (R2)+,#177777           ;IS LOCATION UNCHANGED
006524  001403                          BEQ     5$                      ;YES GO ON
006526  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006530  000073                          .WORD   73                      ;UNIQUE ERROR NUMBER
006532  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
006534  077107          5$:     SOB     R1,4$                   ;ARE WE DONE
006536  020327  000204                  CMP     R3,#0204                ;CHECK FPS
006542  001403                          BEQ     6$                      ;OK GO ON
006544  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006546  000074                          .WORD   74                      ;UNIQUE ERROR NUMBER
006550  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;NO GO TO ERROR
006552  012637  000004          6$:     MOV     (SP)+,@04               ;RESTORE VECTOR

                                ;
006556  000167  000010                  JMP     FIN16
                                ;
006562                          TSF16:
006562  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006564  000075                          .WORD   75                      ;UNIQUE ERROR NUMBER
006566  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;ODD ADDRESS TRAP
006570  000006                          RTT                             ;RETURN
```

```
                                        ;
006572                                  FIN16:
                                        ;
006572                                  TSFP17:
                                        ;;*****************************************************************
                                        ;*TEST 21        TEST FDST SOP MODE 5
                                        ;;*****************************************************************
006572                                  TST21:
006572  005267  172206                          INC     @TESTN                  ;INCREMENT TEST NUMBER
006576  013746  000004                          MOV     @04,-(SP)               ;SAVE TIMEOUT VECTOR
006602  012737  006776  000004                  MOV     #TSF17,@04              ;SETUP NEW VECTOR
006610  005037  002122                          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
006614  012702  000200                          MOV     #200,R2                 ;SETUP TO LOAD FPS
006620  170102                                  LDFPS   R2                      ;SET FD=1
006622  012705  000011                          MOV     #9.,R5                  ;INIT COUNTER
006626  012704  001136                          MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
006632  012724  177777          100$:           MOV     #177777,(R4)+           ;INIT TEST LOCATION
006636  077503                                  SOB     R5,100$                 ;ARE WE DONE
006640  012737  001150  001136                  MOV     #TSTLOC+12,@#TSTLOC             ;INIT TEST LOCATION
006646  012702  001140                          MOV     #TSTLOC+2,R2            ;SETUP POINTER TO DATA
006652  170452                                  CLRD    @-(R2)                  ; TEST INSTRUCTION
006654  170203                                  STFPS   R3                      ;GET FPS
006656  020227  001136                          CMP     R2,#TSTLOC                      ;IS R2 CORRECT
006662  001403                                  BEQ     1$                      ;YES GO ON
006664  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006666  000076                                  .WORD   76                      ;UNIQUE ERROR NUMBER
006670  002013                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;NO GO TO ERROR
006672  022227  001150          1$:             CMP     (R2)+,#TSTLOC+12                ;IS DATA CORRECT
006676  001403                                  BEQ     2$                      ;YES GO ON
006700  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006702  000077                                  .WORD   77                      ;UNIQUE ERROR NUMBER
006704  002013                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;NO GO TO ERROR
006706  012701  000004          2$:             MOV     #4,R1                   ;INIT COUNTER
006712  022227  177777          3$:             CMP     (R2)+,#177777           ;IS LOCATION ALL ONES
006716  001403                                  BEQ     4$                      ;YES GO ON
006720  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006722  000100                                  .WORD   100                     ;UNIQUE ERROR NUMBER
006724  002013                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;NO GO TO ERROR
006726  077107                  4$:             SOB     R1,3$                   ;ARE WE DONE
006730  012701  000004                          MOV     #4,R1                   ;INIT COUNTER
006734  022227  000000          5$:             CMP     (R2)+,#0                ;IS LOCATION 0
006740  001403                                  BEQ     6$                      ;YES GO ON
006742  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006744  000101                                  .WORD   101                     ;UNIQUE ERROR NUMBER
006746  002013                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;NO GO TO ERROR
006750  077107                  6$:             SOB     R1,5$                   ;ARE WE DONE
006752  020327  000204                          CMP     R3,#0204                ;CHECK FPS
006756  001403                                  BEQ     7$                      ;OK GO ON
006760  104000                                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
006762  000102                                  .WORD   102                     ;UNIQUE ERROR NUMBER
006764  002013                                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;NO GO TO ERROR
```

```
1951  006766  012637  000004          7$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
1952
1953                                  ;
1954  006772  000167  000010                  JMP     FIN17
1955                                  ;
1956  006776                          TSF17:
1957  006776  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1958  007000  000103                         .WORD   103                     ;UNIQUE ERROR NUMBER
1959  007002  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1960                                                                  ;ODD ADDRESS TRAP
1961  007004  000006                         RTT                             ;RETURN
1962                                  ;
1963  007006                          FIN17:
1964                                  ;
1965  007006                          TSFP20:
1966                                  ;;*****************************************************************
1967                                  ;*TEST 22        TEST FDST SOP MODE 6
1968                                  ;;*****************************************************************
1969  007006                          TST22:
1970  007006  005267  171772                 INC     $TESTN                  ;INCREMENT TEST NUMBER
1971  007012  005037  002122                 CLR     @#TRPFLG                ;CLEAR TRAP FLAG
1972  007016  013746  000004                 MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
1973  007022  012737  007176  000004         MOV     #TSF20,@#4              ;SETUP NEW VECTOR
1974  007030  012702  000200                 MOV     #200,R2                 ;SETUP TO LOAD FPS
1975  007034  170102                         LDFPS   R2                      ;SET FD=1
1976  007036  012705  000010                 MOV     #8.,R5                  ;INIT COUNTER
1977  007042  012704  001136                 MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
1978  007046  012724  177777         100$:  MOV     #177777,(R4)+           ;INIT TEST LOCATION
1979  007052  077503                         SOB     R5,100$                 ;ARE WE DONE
1980  007054  012702  001137                 MOV     #TSTLOC+1,R2                    ;SETUP POINTER TO DATA
1981  007060  170462  000007                 CLRD    7(R2)                   ; TEST INSTRUCTION
1982  007064  170203                         STFPS   R3                      ;GET FPS
1983  007066  020227  001137                 CMP     R2,#TSTLOC+1                    ;IS R2 CORRECT
1984  007072  001403                         BEQ     1$                      ;YES GO ON
1985  007074  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1986  007076  000104                         .WORD   104                     ;UNIQUE ERROR NUMBER
1987  007100  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1988                                                                  ;NO GO TO ERROR
1989  007102  012702  001136          1$:    MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
1990  007106  012701  000004                 MOV     #4,R1                   ;INIT COUNTER
1991  007112  022227  177777          2$:    CMP     (R2)+,#177777           ;IS DATA CORRECT
1992  007116  001403                         BEQ     3$                      ;YES GO ON
1993  007120  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
1994  007122  000105                         .WORD   105                     ;UNIQUE ERROR NUMBER
1995  007124  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
1996                                                                  ;NO GO TO ERROR
1997  007126  077107                  3$:    SOB     R1,2$                   ;ARE WE DONE
1998  007130  012701  000004                 MOV     #4,R1                   ;INIT COUNTER
1999  007134  022227  000000          4$:    CMP     (R2)+,#0                ;IS DATA CORRECT
2000  007140  001403                         BEQ     5$                      ;YES GO ON
2001  007142  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2002  007144  000106                         .WORD   106                     ;UNIQUE ERROR NUMBER
2003  007146  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2004                                                                  ;NO GO TO ERROR
2005  007150  077107                  5$:    SOB     R1,4$                   ;ARE WE DONE
2006  007152  020327  000204                 CMP     R3,#204                 ;IS FPS CORRECT
```

```
2007  007156  001403                      BEQ     6$                      ;YES GO ON
2008  007160  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2009  007162  000107                      .WORD   107                     ;UNIQUE ERROR NUMBER
2010  007164  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2011                                                                ;NO GO TO ERROR
2012  007166  012637  000004        6$:    MOV     (SP)+,@#4               ;RESTORE VECTOR
2013
2014                                      ;
2015  007172  000167  000010              JMP     FIN20
2016                                      ;
2017  007176                            TSF20.
2018  007176  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2019  007200  000110                      .WORD   110                     ;UNIQUE ERROR NUMBER
2020  007202  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2021                                                                ;ODD ADDRESS TRAP
2022  007204  000006                      RTT                             ;RETURN
2023                                      ;
2024  007206                            FIN20:
2025                                      ;
2026  007206                            TSFP21:
2027                                      ;;*********************************************************************
2028                                      ;*TEST 23        TEST FDST SOP MODE 7
2029                                      ;;*********************************************************************
2030  007206                            TST23:
2031  007206  005267  171572              INC     $TESTN                  ;INCREMENT TEST NUMBER
2032  007212  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2033  007216  013746  000004              MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2034  007222  012737  007420  000004      MOV     #TSF21,@#4              ;SETUP NEW VECTOR
2035  007230  012702  000200              MOV     #200,R2                 ;SETUP TO LOAD FPS
2036  007234  170102                      LDFPS   R2                      ;SET FD=1
2037  007236  012705  000010              MOV     #8.,R5                  ;INIT COUNTER
2038  007242  012704  001136              MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2039  007246  012724  177777        100$: MOV     #177777,(R4)+           ;INIT TEST LOCATION
2040  007252  077503                      SOB     R5,100$                 ;ARE WE DONE
2041  007254  012737  001136  001146      MOV     #TSTLOC,@#TSTLOC+10     ;INIT TEST LOCATION
2042  007262  012702  001141              MOV     #TSTLOC+3,R2            ;SETUP POINTER TO DATA
2043  007266  170472  000005              CLRD    @5(R2)                  ;***TEST INSTRUCTION***
2044  007272  170203                      STFPS   R3                      ;GET FPS
2045  007274  020227  001141              CMP     R2,#TSTLOC+3            ;IS R2 CORRECT
2046  007300  001403                      BEQ     1$                      ;YES GO ON
2047                                                                ;NO GO TO ERROR
2048  007302  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2049  007304  000111                      .WORD   111                     ;UNIQUE ERROR NUMBER
2050  007306  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2051  007310  012702  001136        1$:   MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2052  007314  012701  000004              MOV     #4,R1                   ;INIT COUNTER
2053  007320  022227  000000        2$:   CMP     (R2)+,#0                ;IS DATA CORRECT
2054  007324  001403                      BEQ     3$                      ;YES GO ON
2055  007326  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2056  007330  000112                      .WORD   112                     ;UNIQUE ERROR NUMBER
2057  007332  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2058                                                                ;NO GO TO ERROR
2059  007334  077107                3$:   SOB     R1,2$                   ;ARE WE DONE
2060  007336  022227  001136              CMP     (R2)+,#TSTLOC           ;IS DATA CORRECT
2061  007342  001403                      BEQ     4$                      ;YES GO ON
2062  007344  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
2063  007346  000113                        .WORD   113             ;UNIQUE ERROR NUMBER
2064  007350  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2065                                                                ;NO GO TO ERROR
2066  007352  012701  000003        4$:     MOV     #3,R1           ;INIT COUNTER
2067  007356  022227  177777        5$:     CMP     (R2)+,#177777   ;IS DATA CORRECT
2068  007362  001403                        BEQ     6$              ;YES GO ON
2069  007364  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2070  007366  000114                        .WORD   114             ;UNIQUE ERROR NUMBER
2071  007370  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2072                                                                ;NO GO TO ERROR
2073  007372  077107                6$:     SOB     R1,5$           ;ARE WE DONE
2074  007374  020327  000204                CMP     R3,#204         ;CHECK FPS
2075  007400  001403                        BEQ     7$              ;OK GO ON
2076  007402  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2077  007404  000115                        .WORD   115             ;UNIQUE ERROR NUMBER
2078  007406  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2079                                                                ;NO GO TO ERROR
2080  007410  012637  000004        7$:     MOV     (SP)+,@#4       ;RESTORE VECTOR
2081
2082                                ;
2083  007414  000167  000010                JMP     FIN21
2084                                ;
2085  007420                        TSF21:
2086  007420  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2087  007422  000116                        .WORD   116             ;UNIQUE ERROR NUMBER
2088  007424  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2089                                                                ;ODD ADDRESS TRAP
2090  007426  000006                        RTT                     ;RETURN
2091                                ;
2092  007430                        FIN21:  ;
2093  007430                        TSFP22:
2094                                ;;**************************************************************
2095                                ;*TEST 24       TEST FDST SOP MODE 3 GR7
2096                                ;;**************************************************************
2097  007430                        TST24:
2098  007430  005267  171350                INC     $TESTN          ;INCREMENT TEST NUMBER
2099  007434  005037  002122                CLR     @#TRPFLG        ;CLEAR TRAP FLAG
2100  007440  013746  000004                MOV     @#4,-(SP)       ;SAVE TIME OUT VECTOR
2101  007444  012737  007606  000004        MOV     #TSF22,@#4      ;SETUP NEW VECTOR
2102  007452  012702  000200                MOV     #200,R2         ;SETUP TO LOAD FPS
2103  007456  170102                        LDFPS   R2              ;SET FD=1
2104  007460  012705  000010                MOV     #8.,R5          ;INIT COUNTER
2105  007464  012704  001136                MOV     #TSTLOC,R4      ;SETUP POINTER TO TEST LOCATION
2106  007470  012724  177777        100$:   MOV     #177777,(R4)+   ;INIT TEST LOCATION
2107  007474  077503                        SOB     R5,100$         ;ARE WE DONE
2108  007476  012737  001146  001136        MOV     #TSTLOC+10,@#TSTLOC     ;INIT TEST LOCATION
2109  007504  170437  001136                CLRD    @#TSTLOC        ; TEST INSTRUCTION
2110  007510  170203                        STFPS   R3              ;GET FPS
2111  007512  012702  001136                MOV     #TSTLOC,R2      ;SETUP POINTER TO DATA
2112  007516  012701  000004                MOV     #4,R1           ;INIT COUNTER
2113  007522  022227  000000        1$:     CMP     (R2)+,#0        ;IS DATA CORRECT
2114  007526  001403                        BEQ     2$              ;YES GO ON
2115  007530  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2116  007532  000117                        .WORD   117             ;UNIQUE ERROR NUMBER
2117  007534  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2118                                                                ;NO GO TO ERROR
```

```
2119  007536  077107          2$:     SOB     R1,1$                   ;ARE WE DONE
2120  007540  012701  000004          MOV     #4,R1                   ;INIT COUNTER
2121  007544  022227  177777    3$:   CMP     (R2)+,#177777           ;IS DATA CORRECT
2122  007550  001403                  BEQ     4$                      ;YES GO ON
2123  007552  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2124  007554  000120                  .WORD   120                     ;UNIQUE ERROR NUMBER
2125  007556  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2126                                                          ;NO GO TO ERROR
2127  007560  077107          4$:     SOB     R1,3$                   ;ARE WE DONE
2128  007562  020327  000204          CMP     R3,#204                 ;CHECK FPS
2129  007566  001403                  BEQ     5$                      ;OK GO ON
2130  007570  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2131  007572  000121                  .WORD   121                     ;UNIQUE ERROR NUMBER
2132  007574  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2133                                                          ;NO GO TO ERROR
2134  007576  012637  000004    5$:   MOV     (SP)+,@#4               ;RESTORE VECTOR
2135
2136                              ;
2137  007602  000167  000010          JMP     FIN22
2138                              ;
2139  007606                    TSF22:
2140  007606  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2141  007610  000122                  .WORD   122                     ;UNIQUE ERROR NUMBER
2142  007612  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2143                                                          ;ODD ADDRESS TRAP
2144  007614  000006                  RTT                             ;RETURN
2145
2146  007616                    FIN22:
2147                              ;
2148  007616                    TSFP23:
2149                              ;;*************************************************************
2150                              ;*TEST 25       TEST FDST SOP MODE 6 GR7
2151                              ;;*************************************************************
2152  007616                    TST25:
2153  007616  005267  171162          INC     $TESTN                  ;INCREMENT TEST NUMBER
2154  007622  005037  002122          CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2155  007626  013746  000004          MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2156  007632  012737  007744  000004  MOV     #TSF23,@#4              ;SETUP NEW VECTOR
2157  007640  012702  000200          MOV     #200,R2                 ;SETUP TO LOAD FPS
2158  007644  170102                  LDFPS   R2                      ;SET FD=1
2159  007646  012705  000004          MOV     #4,R5                   ;INIT COUNTER
2160  007652  012704  001136          MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2161  007656  012724  177777  100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2162  007662  077503                  SOB     R5,100$                 ;ARE WE DONE
2163  007664  170467  171246          CLRD    TSTLOC                  ; TEST INSTRUCTION
2164  007670  170203                  STFPS   R3                      ;GET FPS
2165  007672  012701  000004          MOV     #4,R1                   ;INIT COUNTER
2166  007676  012702  001136          MOV     #TSTLOC,R2                      ;SETUP POINTER TO DATA
2167  007702  022227  000000    1$:   CMP     (R2)+,#0                ;IS DATA CORRECT
2168  007706  001403                  BEQ     2$                      ;YES GO ON
2169  007710  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2170  007712  000123                  .WORD   123                     ;UNIQUE ERROR NUMBER
2171  007714  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2172                                                          ;NO GO TO ERROR
2173  007716  077107          2$:     SOB     R1,1$                   ;ARE WE DONE
2174  007720  020327  000204          CMP     R3,#204                 ;CHECK FPS
```

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2175  007724  001403                          BEQ     3$                      ;OK GO ON
2176  007726  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2177  007730  000124                          .WORD   124                     ;UNIQUE ERROR NUMBER
2178  007732  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2179                                                                  ;NO GO TO ERROR
2180  007734  012637  000004          3$:     MOV     (SP)+,@#4               ;RESTORE VECTOR
2181
2182                                          ;
2183  007740  000167  000010                  JMP     FIN23
2184                                          ;
2185  007744                                  TSF23:
2186  007744  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2187  007746  000125                          .WORD   125                     ;UNIQUE ERROR NUMBER
2188  007750  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2189                                                                  ;ODD ADDRESS TRAP
2190  007752  000006                          RTT                             ;
2191  007754                                  FIN23:
2192                                          ;
2193  007754                                  TSFP24:
2194                                          ;;*********************************************************************
2195                                          ;*TEST 26        TEST FDST SOP MODE 7 GR7
2196                                          ;;*********************************************************************
2197  007754                                  TST26:
2198  007754  005267  171024                  INC     $TESTN                  ;INCREMENT TEST NUMBER
2199  007760  005037  002122                  CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2200  007764  013746  000004                  MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2201  007770  012737  010146  000004          MOV     #TSF24,@#4              ;SETUP NEW VECTOR
2202  007776  012702  000200                  MOV     #200,R2                 ;SETUP TO LOAD FPS
2203  010002  170102                          LDFPS   R2                      ;SET FD=1
2204  010004  012705  000010                  MOV     #8 ,R5                  ;INIT COUNTER
2205  010010  012704  001136                  MOV     #TSTLOC,R4              ;SETUP TEST LOCATION POINTER
2206  010014  012724  177777          100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2207  010020  077503                          SOB     R5,100$                 ;ARE WE DONE
2208  010022  012737  001136  001146          MOV     #TSTLOC,@#TSTLOC+10     ;INIT TEST LOCATION
2209  010030  170477  171112                  CLRD    @TSTLOC+10              ;***TEST INSTRUCTION***
2210  010034  170203                          STFPS   R3                      ;GET FPS
2211  010036  012702  001136                  MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2212  010042  012701  000004                  MOV     #4,R1                   ;INIT COUNTER
2213  010046  022227  000000          1$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2214  010052  001403                          BEQ     2$                      ;YES GO ON
2215                                                                  ;NO, GO TO ERROR
2216  010054  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2217  010056  000126                          .WORD   126                     ;UNIQUE ERROR NUMBER
2218  010060  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2219  010062  077107                  2$:     SOB     R1,1$                   ;ARE WE DONE
2220  010064  022227  001136                  CMP     (R2)+,#TSTLOC           ;IS DATA CORRECT
2221  010070  001403                          BEQ     3$                      ;YES GO ON
2222                                                                  ;NO, GO TO ERROR
2223  010072  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2224  010074  000127                          .WORD   127                     ;UNIQUE ERROR NUMBER
2225  010076  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2226  010100  012701  000003          3$:     MOV     #3,R1                   ;INIT COUNTER
2227  010104  022227  177777          4$:     CMP     (R2)+,#177777           ;IS DATA CORRECT
2228  010110  001403                          BEQ     5$                      ;YES GO ON
2229  010112  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2230  010114  000130                          .WORD   130                     ;UNIQUE ERROR NUMBER
```

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2231  010116  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2232                                                                        ;NO GO TO ERROR
2233  010120  077107              5$:       SOB     R1,4$                   ;ARE WE DONE
2234  010122  020327  000204              CMP     R3,#0204                ;CHECK FPS
2235  010126  001403                      BEQ     6$                      ;OK GO ON
2236  010130  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2237  010132  000131                      .WORD   131                     ;UNIQUE ERROR NUMBER
2238  010134  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2239                                                                ;NO GO TO ERROR
2240  010136  012637  000004      6$:       MOV     (SP)+,@#4               ;RESTORE VECTOR
2241
2242                                        ;
2243  010142  000167  000010              JMP     FIN24
2244                                        ;
2245  010146                              TSF24:
2246  010146  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2247  010150  000132                      .WORD   132                     ;UNIQUE ERROR NUMBER
2248  010152  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2249                                                                ;ODD ADDRESS TRAP
2250  010154  000006                      RTT                             ;
2251
2252  010156                              FIN24:
2253                                        ;
2254  010156                              TSFP25:
2255                                        ;;*************************************************************************
2256                                        ;*TEST 27       TEST CLRF
2257                                        ;;*************************************************************************
2258  010156                              TST27:
2259  010156  005267  170622              INC     $TESTN                  ;INCREMENT TEST NUMBER
2260  010162  005037  002122              CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2261  010166  005002                      CLR     R2                      ;SETUP TO LOAD FPS
2262  010170  170102                      LDFPS   R2                      ;SET FD=0
2263  010172  012705  000004              MOV     #4,R5                   ;INIT COUNTER
2264  010176  012704  001136              MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2265  010202  012724  177777      100$:   MOV     #177777,(R4)+           ;INIT TEST LOCATION
2266  010206  077503                      SOB     R5,100$                 ;ARE WE DONE
2267  010210  012702  001136              MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2268  010214  170422                      CLRF    (R2)+                   ; TEST INSTRUCTION
2269  010216  170203                      STFPS   R3                      ;GET FPS
2270  010220  020227  001142              CMP     R2,#TSTLOC+4            ;IS R2 CORRECT
2271  010224  001403                      BEQ     1$                      ;YES GO ON
2272                                                                        ;NO, GO TO ERROR
2273  010226  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2274  010230  000133                      .WORD   133                     ;UNIQUE ERROR NUMBER
2275  010232  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2276  010234  012702  001136      1$:     MOV     #TSTLOC,R2              ;SETUP POINTER TO DATA
2277  010240  012701  000002              MOV     #2,R1                   ;INIT COUNTER
2278  010244  022227  000000      2$:     CMP     (R2)+,#0                ;IS DATA CORRECT
2279  010250  001403                      BEQ     3$                      ;YES GO ON
2280                                                                        ;NO, GO TO ERROR
2281  010252  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2282  010254  000134                      .WORD   134                     ;UNIQUE ERROR NUMBER
2283  010256  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2284  010260  077107              3$:     SOB     R1,2$                   ;ARE WE DONE
2285  010262  012701  000002              MOV     #2,R1                   ;INIT COUNTER
2286  010266  022227  177777      4$:     CMP     (R2)+,#177777           ;IS DATA CORRECT
```

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2287  010272  001403                    BEQ     5$                      ;YES GO ON
2288                                                                      ;NO GO TO ERROR
2289  010274  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2290  010276  000135                    .WORD   135                     ;UNIQUE ERROR NUMBER
2291  010300  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2292  010302  077107            5$:     SOB     R1,4$                   ;ARE WE DONE
2293  010304  020327  000004            CMP     R3,#4                   ;CHECK FPS
2294  010310  001403                    BEQ     6$                      ;OK GO ON
2295                                                                      ;NO, GO TO ERROR
2296  010312  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2297  010314  000136                    .WORD   136                     ;UNIQUE ERROR NUMBER
2298  010316  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2299  010320                    6$:
2300
2301                                    ;
2302  010320                    TSFP26:
2303                                    ;;*****************************************************************
2304                                    ;*TEST 30        TEST TSTF AND TSTD
2305                                    ;;*****************************************************************
2306  010320                    TST30:
2307  010320  005267  170460            INC     @TESTN                  ;INCREMENT TEST NUMBER
2308  010324  005037  002122            CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2309  010330  005004                    CLR     R4                      ;SETUP TO LOAD FPS
2310  010332  170104                    LDFPS   R4                      ;SET FD=0
2311  010334  170567  000300            TSTF    TS26D0                  ;***TEST INSTRUCTION***
2312  010340  170203                    STFPS   R3                      ;GET FPS
2313  010342  020327  000004            CMP     R3,#4                   ;CHECK FPS
2314  010346  001403                    BEQ     1$                      ;OK GO ON
2315                                                                      ;NO, GO TO ERROR
2316  010350  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2317  010352  000137                    .WORD   137                     ;UNIQUE ERROR NUMBER
2318  010354  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2319  010356  012704  010640    1$:     MOV     @TS26D0,R4              ;SETUP POINTERS TO DATA
2320  010362  012702  010670            MOV     @TS26D3,R2              ;
2321  010366  004767  000224            JSR     PC,CHEC26               ;CHECK IF DATA IS CORRECT
2322  010372  170537  010650            TSTF    @#TS26D1                ;***TEST INSTRUCTION***
2323  010376  170203                    STFPS   R3                      ;GET FPS
2324  010400  020327  000010            CMP     R3,#10                  ;CHECK FPS
2325  010404  001403                    BEQ     2$                      ;OK GO ON
2326                                                                      ;NO, GO TO ERROR
2327  010406  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2328  010410  000140                    .WORD   140                     ;UNIQUE ERROR NUMBER
2329  010412  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2330  010414  012704  010650    2$:     MOV     @TS26D1,R4              ;SETUP POINTERS TO DATA
2331  010420  012702  010700            MOV     @TS26D4,R2              ;
2332  010424  004767  000166            JSR     PC,CHEC26               ;CHECK IF DATA IS CORRECT
2333  010430  170567  000224            TSTF    TS26D2                  ;***TEST INSTRUCTION***
2334  010434  170203                    STFPS   R3                      ;GET FPS
2335  010436  020327  000000            CMP     R3,#0                   ;CHECK FPS
2336  010442  001403                    BEQ     3$                      ;OK GO ON
2337                                                                      ;NO, GO TO ERROR
2338  010444  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2339  010446  000141                    .WORD   141                     ;UNIQUE ERROR NUMBER
2340  010450  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2341  010452  012704  010660    3$:     MOV     @TS26D2,R4              ;SETUP POINTERS TO DATA
2342  010456  012702  010710            MOV     @TS26D5,R2              ;
```

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2343  010462  004767  000130          JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2344  010466  012704  000200          MOV     #200,R4         ;SETUP TO LOAD FPS
2345  010472  170104                  LDFPS   R4              ;SET FD=1
2346  010474  170537  010640          TSTD    @#TS26D0        ;***TEST INSTRUCTION***
2347  010500  170203                  STFPS   R3              ;GET FPS
2348  010502  020327  000204          CMP     R3,#204         ;CHECK FPS
2349  010506  001403                  BEQ     4$              ;OK GO ON
2350                                                          ;NO, GO TO ERROR
2351  010510  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2352  010512  000142                  .WORD   142             ;UNIQUE ERROR NUMBER
2353  010514  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2354  010516  012704  010640  4$:     MOV     #TS26D0,R4      ;SETUP POINTERS TO DATA
2355  010522  012702  010670          MOV     #TS26D3,R2      ;
2356  010526  004767  000064          JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2357  010532  170567  000112          TSTD    TS26D1          ;***TEST INSTRUCTION***
2358  010536  170203                  STFPS   R3              ;GET FPS
2359  010540  020327  000210          CMP     R3,#210         ;CHECK FPS
2360  010544  001403                  BEQ     5$              ;OK GO ON
2361                                                          ;NO, GO TO ERROR
2362  010546  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2363  010550  000143                  .WORD   143             ;UNIQUE ERROR NUMBER
2364  010552  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2365  010554  012704  010650  5$:     MOV     #TS26D1,R4      ;SETUP POINTERS TO DATA
2366  010560  012702  010700          MOV     #TS26D4,R2      ;
2367  010564  004767  000026          JSR     PC,CHEC26       ;CHECK IF DATA IS CORRECT
2368  010570  170567  000064          TSTD    TS26D2          ;***TEST INSTRUCTION
2369  010574  170203                  STFPS   R3              ;GET FPS
2370  010576  020327  000200          CMP     R3,#200         ;CHECK FPS
2371  010602  001403                  BEQ     6$              ;OK GO ON
2372  010604  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2373  010606  000144                  .WORD   144             ;UNIQUE ERROR NUMBER
2374  010610  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2375                                                      ;NO GO TO ERROR
2376  010612                  6$:
2377
2378                                  ;
2379  010612  000167  000102          JMP     FIN26
2380                                  ;
2381  010616  012701  000004  CHEC26: MOV     #4,R1           ;INIT COUNTER
2382  010622  022422          1$:     CMP     (R4)+,(R2)+     ;IS DATA CORRECT
2383  010624  001403                  BEQ     2$              ;YES GO ON
2384  010626  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2385  010630  000145                  .WORD   145             ;UNIQUE ERROR NUMBER
2386  010632  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2387                                                      ;NO GO TO ERROR
2388  010634  077106          2$:     SOB     R1,1$           ;ARE WE DONE
2389  010636  000207                  RTS     PC              ;RETURN
2390                                  ;
2391  010640  000177  TS26D0: .WORD   177
2392  010642  177777          .WORD   177777
2393  010644  177777          .WORD   177777
2394  010646  177777          .WORD   177777
2395  010650  177777  TS26D1: .WORD   177777
2396  010652  000000          .WORD   0
2397  010654  000000          .WORD   0
2398  010656  000000          .WORD   0
```

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2399  010660  077777                    TS26D2: .WORD   77777
2400  010662  000000                            .WORD   0
2401  010664  000000                            .WORD   0
2402  010666  000000                            .WORD   0
2403  010670  000177                    TS26D3: .WORD   177
2404  010672  177777                            .WORD   177777
2405  010674  177777                            .WORD   177777
2406  010676  177777                            .WORD   177777
2407  010700  177777                    TS26D4: .WORD   177777
2408  010702  000000                            .WORD   0
2409  010704  000000                            .WORD   0
2410  010706  000000                            .WORD   0
2411  010710  077777                    TS26D5: .WORD   77777
2412  010712  000000                            .WORD   0
2413  010714  000000                            .WORD   0
2414  010716  000000                            .WORD   0
2415  010720                            FIN26:
2416                                    ;
2417  010720                            TSFP27:
2418                                    ;;**********************************************************************
2419                                    ;*TEST 31        TEST ABSF
2420                                    ;;**********************************************************************
2421  010720                            TST31:
2422  010720  005267  170060                   INC     $TESTN                  ;INCREMENT TEST NUMBER
2423  010724  005037  002122                   CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2424  010730  005005                            CLR     R5                      ;SETUP TO LOAD FPS
2425  010732  170105                            LDFPS   R5                      ;SET FD=0
2426  010734  012701  000014                   MOV     #12.,R1                 ;INIT COUNTER
2427  010740  012704  001136                   MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2428  010744  012703  011204                   MOV     #TS27D0,R3              ;SETUP POINTER TO TEST VALUE
2429  010750  012324                    100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2430  010752  077102                            SOB     R1,100$                 ;ARE WE DONE
2431  010754  012705  001136                   MOV     #TSTLOC,R5              ;SETUP POINTER TO DATA
2432  010760  170615                            ABSF    (R5)                    ;***TEST INSTRUCTION***
2433  010762  170203                            STFPS   R3                      ;GET FPS
2434  010764  020527  001136                   CMP     R5,#TSTLOC              ;IS R5 CORRECT
2435  010770  001403                            BEQ     1$                      ;YES GO ON
2436                                                                            ;NO, GO TO ERROR
2437  010772  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2438  010774  000146                            .WORD   146                     ;UNIQUE ERROR NUMBER
2439  010776  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2440  011000  012702  011234            1$:     MOV     #TS27D3,R2              ;SETUP POINTER TO DATA
2441  011004  004767  000152                   JSR     PC,CHEC27               ;CHECK IF DATA IS CORRECT
2442  011010  020327  000000                   CMP     R3,#0                   ;CHECK FPS
2443  011014  001403                            BEQ     2$                      ;OK GO ON
2444                                                                            ;NO, GO TO ERROR
2445  011016  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2446  011020  000147                            .WORD   147                     ;UNIQUE ERROR NUMBER
2447  011022  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2448  011024  012705  001146            2$:     MOV     #TSTLOC+10,R5           ;SETUP POINTER TO DATA
2449  011030  170625                            ABSF    (R5)+                   ;***TEST INSTRUCTION***
2450  011032  170203                            STFPS   R3                      ;GET FPS
2451  011034  020527  001152                   CMP     R5,#TSTLOC+14           ;IS R5 CORRECT
2452  011040  001403                            BEQ     3$                      ;YES GO ON
2453                                                                            ;NO, GO TO ERROR
2454  011042  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
```

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2455  011044  000150                        .WORD   150             ;UNIQUE ERROR NUMBER
2456  011046  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2457  011050  012705  001146          3$:   MOV     #TSTLOC+10,R5   ;SETUP POINTER TO DATA
2458  011054  012702  011244                MOV     #TS27D4,R2      ;
2459  011060  004767  000076                JSR     PC,CHEC27       ;CHECK IF DATA IS CORRECT
2460  011064  020327  000000                CMP     R3,#0           ;CHECK FPS
2461  011070  001403                        BEQ     4$              ;OK GO ON
2462                                                                 ;NO, GO TO ERROR
2463  011072  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2464  011074  000151                        .WORD   151             ;UNIQUE ERROR NUMBER
2465  011076  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2466  011100  012705  001136          4$:   MOV     #TSTLOC,R5      ;SETUP POINTER TO DATA
2467  011104  170665  000020                ABSF    20(R5)          ;***TEST INSTRUCTION***
2468  011110  170203                        STFPS   R3              ;GET FPS
2469  011112  020527  001136                CMP     R5,#TSTLOC      ;IS R5 CORRECT
2470  011116  001403                        BEQ     5$              ;YES GO ON
2471                                                                 ;NO, GO TO ERROR
2472  011120  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2473  011122  000152                        .WORD   152             ;UNIQUE ERROR NUMBER
2474  011124  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2475  011126  012705  001156          5$:   MOV     #TSTLOC+20,R5   ;SETUP POINTERS TO DATA
2476  011132  012702  011254                MOV     #TS27D5,R2      ;
2477  011136  004767  000020                JSR     PC,CHEC27       ;CHECK IF DATA IS CORRECT
2478  011142  020327  000004                CMP     R3,#4           ;CHECK FPS
2479  011146  001403                        BEQ     6$              ;OK GO ON
2480                                                                 ;NO, GO TO ERROR
2481  011150  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2482  011152  000153                        .WORD   153             ;UNIQUE ERROR NUMBER
2483  011154  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2484  011156                          6$:
2485
2486
2487  011156  000167  000102                JMP     FIN27
2488
2489  011162  012701  000004        CHEC27: MOV     #4,R1           ;INIT COUNTER
2490  011166  022522                1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2491  011170  001403                        BEQ     2$              ;YES GO ON
2492                                                                 ;NO, GO TO ERROR
2493  011172  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2494  011174  000154                        .WORD   154             ;UNIQUE ERROR NUMBER
2495  011176  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2496  011200  077106                2$:     SOB     R1,1$           ;ARE WE DONE
2497  011202  000207                        RTS     PC              ;RETURN
2498
2499  011204  177777                TS27D0: .WORD   177777
2500  011206  177777                        .WORD   177777
2501  011210  177777                        .WORD   177777
2502  011212  177777                        .WORD   177777
2503  011214  000377                TS27D1: .WORD   377
2504  011216  175436                        .WORD   175436
2505  011220  136477                        .WORD   136477
2506  011222  000001                        .WORD   1
2507  011224  000177                TS27D2: .WORD   177
2508  011226  175436                        .WORD   175436
2509  011230  136477                        .WORD   136477
2510  011232  000001                        .WORD   1
```

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2511  011234  077777                  TS27D3: .WORD   77777
2512  011236  177777                          .WORD   177777
2513  011240  177777                          .WORD   177777
2514  011242  177777                          .WORD   177777
2515  011244  000377                  TS27D4: .WORD   377
2516  011246  175436                          .WORD   175436
2517  011250  136477                          .WORD   136477
2518  011252  000001                          .WORD   1
2519  011254  000000                  TS27D5: .WORD   0
2520  011256  000000                          .WORD   0
2521  011260  136477                          .WORD   136477
2522  011262  000001                          .WORD   1
2523  011264                          FIN27:
2524                                  ;
2525  011264                          TSFP30:
2526                                  ;;**********************************************************************
2527                                  ;*TEST 32        TEST ABSD
2528                                  ;;**********************************************************************
2529  011264                          TST32:
2530  011264  005267  167514                 INC     $TESTN                  ;INCREMENT TEST NUMBER
2531  011270  005037  002122                 CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2532  011274  012705  000200                 MOV     #200,R5                 ;SETUP TO LOAD FPS
2533  011300  170105                         LDFPS   R5                      ;SET FD=1
2534  011302  012701  000014                 MOV     #12.,R1                 ;INIT COUNTER
2535  011306  012704  001136                 MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2536  011312  012703  011552                 MOV     #TS30D0,R3              ;SETUP POINTER TO TEST VALUE
2537  011316  012324                 100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2538  011320  077102                         SOB     R1,100$                 ;ARE WE DONE
2539  011322  012705  001136                 MOV     #TSTLOC,R5              ;SETUP POINTER TO DATA
2540  011326  170615                         ABSD    (R5)                    ;***TEST INSTRUCTION***
2541  011330  170203                         STFPS   R3                      ;GET FPS
2542  011332  020527  001136                 CMP     R5,#TSTLOC              ;IS R5 CORRECT
2543  011336  001403                         BEQ     1$                      ;YES GO ON
2544                                                                          ;NO, GO TO ERROR
2545  011340  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2546  011342  000155                         .WORD   155                     ;UNIQUE ERROR NUMBER
2547  011344  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2548  011346  012702  011602         1$:     MOV     #TS30D3,R2              ;SETUP POINTER TO DATA
2549  011352  004767  000152                 JSR     PC,CHEC30               ;CHECK IF DATA IS CORRECT
2550  011356  020327  000200                 CMP     R3,#200                 ;CHECK FPS
2551  011362  001403                         BEQ     2$                      ;OK GO ON
2552                                                                          ;NO, GO TO ERROR
2553  011364  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2554  011366  000156                         .WORD   156                     ;UNIQUE ERROR NUMBER
2555  011370  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2556  011372  012705  001146         2$:     MOV     #TSTLOC+10,R5           ;SETUP POINTER TO DATA
2557  011376  170625                         ABSD    (R5)+                   ;***TEST INSTRUCTION***
2558  011400  170203                         STFPS   R3                      ;GET FPS
2559  011402  020527  001156                 CMP     R5,#TSTLOC+20           ;IS R5 CORRECT
2560  011406  001403                         BEQ     3$                      ;YES GO ON
2561                                                                          ;NO, GO TO ERROR
2562  011410  104000                         ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2563  011412  000157                         .WORD   157                     ;UNIQUE ERROR NUMBER
2564  011414  002013                         .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2565  011416  012705  001146         3$:     MOV     #TSTLOC+10,R5           ;SETUP POINTERS TO DATA
2566  011422  012702  011612                 MOV     #TS30D4,R2              ;
```

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2567  011426  004767  000076          JSR     PC,CHEC30       ;CHECK IF DATA IS CORRECT
2568  011432  020327  000200          CMP     R3,#200         ;CHECK FPS
2569  011436  001403                  BEQ     4$              ;OK GO ON
2570                                                          ;NO, GO TO ERROR
2571  011440  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2572  011442  000160                  .WORD   160             ;UNIQUE ERROR NUMBER
2573  011444  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2574  011446  012705  001136  4$:     MOV     #TSTLOC,R5      ;SETUP POINTER TO DATA
2575  011452  170665  000020          ABSD    20(R5)          ;***TEST INSTRUCTION***
2576  011456  170203                  STFPS   R3              ;GET FPS
2577  011460  020527  001136          CMP     R5,#TSTLOC      ;IS R5 CORRECT
2578  011464  001403                  BEQ     5$              ;YES GO ON
2579                                                          ;NO, GO TO ERROR
2580  011466  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2581  011470  000161                  .WORD   161             ;UNIQUE ERROR NUMBER
2582  011472  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2583  011474  012705  001156  5$:     MOV     #TSTLOC+20,R5   ;SETUP POINTERS TO DATA
2584  011500  012702  011622          MOV     #TS3005,R2      ;
2585  011504  004767  000020          JSR     PC,CHEC30       ;CHECK IF DATA IS CORRECT
2586  011510  020327  000204          CMP     R3,#204         ;CHECK FPS
2587  011514  001403                  BEQ     6$              ;OK GO ON
2588                                                          ;NO, GO TO ERROR
2589  011516  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2590  011520  000162                  .WORD   162             ;UNIQUE ERROR NUMBER
2591  011522  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2592  011524                  6$:
2593
2594  011524  000167  000102          JMP     FIN30
2595                          ;
2596  011530  012701  000004  CHEC30: MOV     #4,R1           ;INIT COUNTER
2597  011534  022522          1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2598  011536  001403                  BEQ     2$              ;YES GO ON
2599                                                          ;NO, GO TO ERROR
2600  011540  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2601  011542  000163                  .WORD   163             ;UNIQUE ERROR NUMBER
2602  011544  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2603  011546  077106          2$:     SOB     R1,1$           ;ARE WE DONE
2604  011550  000207                  RTS     PC              ;RETURN
2605
2606  011552  177777  TS3000: .WORD   177777
2607  011554  177777                  .WORD   177777
2608  011556  177777                  .WORD   177777
2609  011560  177777                  .WORD   177777
2610  011562  000377  TS3001: .WORD   377
2611  011564  175436                  .WORD   175436
2612  011566  136477                  .WORD   136477
2613  011570  000001                  .WORD   1
2614  011572  000177  TS3002: .WORD   177
2615  011574  175436                  .WORD   175436
2616  011576  136477                  .WORD   136477
2617  011600  000001                  .WORD   1
2618  011602  077777  TS3003: .WORD   77777
2619  011604  177777                  .WORD   177777
2620  011606  177777                  .WORD   177777
2621  011610  177777                  .WORD   177777
2622  011612  000377  TS3004: .WORD   377
```

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2623  011614  175436                          .WORD   175436
2624  011616  136477                          .WORD   136477
2625  011620  000001                          .WORD   1
2626  011622  000000                  TS30D5: .WORD   0
2627  011624  000000                          .WORD   0
2628  011626  000000                          .WORD   0
2629  011630  000000                          .WORD   0
2630  011632                          FIN30:
2631                                  ;
2632  011632                          TSFP31:
2633                                  ;;**********************************************************************
2634                                  ;*TEST 33       TEST FDST SOP MODE 2 GR7
2635                                  ;;**********************************************************************
2636  011632                          TST33:
2637  011632  005267  167146                INC     $TESTN                  ;INCREMENT TEST NUMBER
2638  011636  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2639  011642  013746  000004                MOV     @#4,-(SP)               ;SAVE TIMEOUT VECTOR
2640  011646  012737  011764  000004        MOV     #TSF31,@#4              ;SETUP NEW VECTOR
2641  011654  012702  000200                MOV     #200,R2                 ;SETUP TO LOAD FPS
2642  011660  170102                        LDFPS   R2                      ;SET FD=1
2643  011662  170527  000005        TSD31:  TSTD    #5                      ;***TEST INSTRUCTION***
2644  011666  000240                        NOP
2645  011670  000240                        NOP
2646  011672  000240                        NOP
2647  011674  170203                        STFPS   R3                      ;GET FPS
2648  011676  020327  000204                CMP     R3,#204                 ;CHECK FPS
2649  011702  001403                        BEQ     1$                      ;OK GO ON
2650  011704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2651  011706  000164                        .WORD   164                     ;UNIQUE ERROR NUMBER
2652  011710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2653                                                                  ;NO GO TO ERROR
2654  011712  012702  011664        1$:     MOV     #TSD31+2,R2             ;SETUP POINTER TO DATA
2655  011716  022227  000005                CMP     (R2)+,#5                ;IS DATA CORRECT
2656  011722  001403                        BEQ     2$                      ;YES GO ON
2657  011724  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2658  011726  000165                        .WORD   165                     ;UNIQUE ERROR NUMBER
2659  011730  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2660                                                                  ;NO GO TO ERROR
2661  011732  012701  000003        2$:     MOV     #3,R1                   ;INIT COUNTER
2662  011736  022227  000240        3$:     CMP     (R2)+,#240              ;IS DATA CORRECT
2663  011742  001403                        BEQ     4$                      ;YES GO ON
2664  011744  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2665  011746  000166                        .WORD   166                     ;UNIQUE ERROR NUMBER
2666  011750  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2667                                                                  ;NO GO TO ERROR
2668  011752  077107                4$:     SOB     R1,3$                   ;ARE WE DONE
2669  011754  012637  000004                MOV     (SP)+,@#4               ;RESTORE VECTOR
2670
2671                                  ;
2672  011760  000167  000010                JMP     FIN31
2673                                  ;
2674  011764                          TSF31:
2675  011764  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2676  011766  000167                        .WORD   167                     ;UNIQUE ERROR NUMBER
2677  011770  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2678                                                                  ;ODD ADDRESS TRAP
```

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2679  011772  000006                        RTT                             ;RETURN
2680                                  ;
2681  011774                          FIN31:
2682                                  ;
2683  011774                          TSFP32:
2684                                  ;;*****************************************************************
2685                                  ;*TEST 34        TEST NEGF
2686                                  ;;*****************************************************************
2687  011774                          TST34.
2688  011774  005267  167004                INC     #TESTN                  ;INCREMENT TEST NUMBER
2689  012000  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2690  012004  005005                        CLR     R5                      ;SETUP TO LOAD FPS
2691  012006  170105                        LDFPS   R5                      ;SET FD=0
2692  012010  012701  000014                MOV     #12.,R1                 ;INIT COUNTER
2693  012014  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2694  012020  012703  012210                MOV     #TS32D0,R3              ;SETUP POINTER TO TEST VALUE
2695  012024  012324                100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2696  012026  077102                        SOB     R1,100$                 ;ARE WE DONE
2697  012030  170767  167102                NEGF    TSTLOC                  ;***TEST INSTRUCTION***
2698  012034  170203                        STFPS   R3                      ;GET FPS
2699  012036  012705  001136                MOV     #TSTLOC,R5              ;SETUP POINTERS TO DATA
2700  012042  012702  012240                MOV     #TS32D3,R2              ;
2701  012046  004767  000114                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2702  012052  020327  000000                CMP     R3,#0                   ;CHECK FPS
2703  012056  001403                        BEQ     1$                      ;YES GO ON
2704                                                                        ;NO, GO TO ERROR
2705  012060  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2706  012062  000170                        .WORD   170                     ;UNIQUE ERROR NUMBER
2707  012064  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2708  012066  170767  167054        1$:     NEGF    TSTLOC+10               ;***TEST INSTRUCTION***
2709  012072  170203                        STFPS   R3                      ;GET FPS
2710  012074  012705  001146                MOV     #TSTLOC+10,R5           ;SETUP POINTERS TO DATA
2711  012100  012702  012250                MOV     #TS32D4,R2              ;
2712  012104  004767  000056                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2713  012110  020327  000010                CMP     R3,#10                  ;CHECK FPS
2714  012114  001403                        BEQ     2$                      ;OK GO ON
2715                                                                        ;NO, GO TO ERROR
2716  012116  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2717  012120  000171                        .WORD   171                     ;UNIQUE ERROR NUMBER
2718  012122  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2719  012124  170767  167026        2$:     NEGF    TSTLOC+20               ;***TEST INSTRUCTION***
2720  012130  170203                        STFPS   R3                      ;GET FPS
2721  012132  012705  001156                MOV     #TSTLOC+20,R5           ;SETUP POINTERS TO DATA
2722  012136  012702  012260                MOV     #TS32D5,R2              ;
2723  012142  004767  000020                JSR     PC,CHEC32               ;CHECK IF DATA IS CORRECT
2724  012146  020327  000004                CMP     R3,#4                   ;CHECK FPS
2725  012152  001403                        BEQ     3$                      ;OK GO ON
2726                                                                        ;NO, GO TO ERROR
2727  012154  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2728  012156  000172                        .WORD   172                     ;UNIQUE ERROR NUMBER
2729  012160  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2730  012162                          3$:
2731
2732  012162  000167  000102                JMP     FIN32
2733                                  ;
2734  012166  012701  000004        CHEC32: MOV     #4,R1                   ;INIT COUNTER
```

```
2735  012172  022522                1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2736  012174  001403                        BEQ     2$              ;YES GO ON
2737                                                                  ;NO, GO TO ERROR
2738  012176  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2739  012200  000173                        .WORD   173             ;UNIQUE ERROR NUMBER
2740  012202  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2741  012204  077106                2$:     SOB     R1,1$           ;ARE WE DONE
2742  012206  000207                        RTS     PC              ;RETURN
2743                                        ;
2744  012210  170000                TS32D0: .WORD   170000
2745  012212  003541                        .WORD   3541
2746  012214  177777                        .WORD   177777
2747  012216  172710                        .WORD   172710
2748  012220  070000                TS32D1: .WORD   70000
2749  012222  003541                        .WORD   3541
2750  012224  177777                        .WORD   177777
2751  012226  172710                        .WORD   172710
2752  012230  000177                        .WORD   177
2753  012232  100000                        .WORD   100000
2754  012234  177777                        .WORD   177777
2755  012236  177007                        .WORD   177007
2756  012240  070000                TS32D3: .WORD   70000
2757  012242  003541                        .WORD   3541
2758  012244  177777                        .WORD   177777
2759  012246  172710                        .WORD   172710
2760  012250  170000                TS32D4: .WORD   170000
2761  012252  003541                        .WORD   3541
2762  012254  177777                        .WORD   177777
2763  012256  172710                        .WORD   172710
2764  012260  000000                TS32D5: .WORD   0
2765  012262  000000                        .WORD   0
2766  012264  177777                        .WORD   177777
2767  012266  177007                        .WORD   177007
2768  012270                        FIN32:
2769                                        ;
2770  012270                        TSFP33:
2771                                        ;;*****************************************************************
2772                                        ;*TEST 35        TEST NEGD
2773                                        ;;*****************************************************************
2774  012270                        TST35:
2775  012270  005267  166510                INC     $TESTN                  ;INCREMENT TEST NUMBER
2776  012274  005037  002122                CLR     @#TRPFLG                ;CLEAR TRAP FLAG
2777  012300  012705  000200                MOV     #200,R5                 ;SETUP TO LOAD FPS
2778  012304  170105                        LDFPS   R5                      ;SET FD=1
2779  012306  012701  000014                MOV     #12.,R1                 ;INIT COUNTER
2780  012312  012704  001136                MOV     #TSTLOC,R4              ;SETUP POINTER TO TEST LOCATION
2781  012316  012703  012506                MOV     #TS33D0,R3              ;SETUP POINTER TO TEST VALUE
2782  012322  012324                100$:   MOV     (R3)+,(R4)+             ;INIT TEST LOCATION
2783  012324  077102                        SOB     R1,100$                 ;ARE WE DONE
2784  012326  170767  166604                NEGD    TSTLOC                  ;***TEST INSTRUCTION***
2785  012332  170203                        STFPS   R3                      ;GET FPS
2786  012334  012705  001136                MOV     #TSTLOC,R5              ;SETUP POINTERS TO DATA
2787  012340  012702  012536                MOV     #TS33D3,R2              ;
2788  012344  004767  000114                JSR     PC,CHEC33               ;CHECK IF DATA IS CORRECT
2789  012350  020327  000200                CMP     R3,#200                 ;CHECK FPS
2790  012354  001403                        BEQ     1$                      ;OK GO ON
```

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2791
2792  012356  104000                    ERROR                   ;NO. GO TO ERROR
2793  012360  000174                    .WORD   174             ;ALL ERRORS TO TRAP TO EMT VECTOR
2794  012362  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2795  012364  170767  166556      1$:   NEGD    TSTLOC+10       ;ADDRESS OF ERROR MESSAGE
2796  012370  170203                    STFPS   R3              ;***TEST INSTRUCTION***
2797  012372  012705  001146            MOV     #TSTLOC+10,R5   ;GET FPS
2798  012376  012702  012546            MOV     #TS33D4,R2      ;SETUP POINTERS TO DATA
2799  012402  004767  000056            JSR     PC,CHEC33       ;
2800  012406  020327  000210            CMP     R3,#210         ;CHECK IF DATA IS CORRECT
2801  012412  001403                    BEQ     2$              ;CHECK FPS
2802                                                            ;OK GO ON
2803  012414  104000                    ERROR                   ;NO. GO TO ERROR
2804  012416  000175                    .WORD   175             ;ALL ERRORS TO TRAP TO EMT VECTOR
2805  012420  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2806  012422  170767  166530      2$:   NEGD    TSTLOC+20       ;ADDRESS OF ERROR MESSAGE
2807  012426  170203                    STFPS   R3              ;***TEST INSTRUCTION***
2808  012430  012705  001156            MOV     #TSTLOC+20,R5   ;GET FPS
2809  012434  012702  012556            MOV     #TS33D5,R2      ;SETUP POINTERS TO DATA
2810  012440  004767  000020            JSR     PC,CHEC33       ;
2811  012444  020327  000204            CMP     R3,#204         ;CHECK IF DATA IS CORRECT
2812  012450  001403                    BEQ     3$              ;CHECK FPS
2813                                                            ;OK GO ON
2814  012452  104000                    ERROR                   ;NO. GO TO ERROR
2815  012454  000176                    .WORD   176             ;ALL ERRORS TO TRAP TO EMT VECTOR
2816  012456  002013                    .WORD   FPPERR          ;UNIQUE ERROR NUMBER
2817  012460                      3$:                           ;ADDRESS OF ERROR MESSAGE
2818
2819  012460  000167  000102            JMP     FIN33
2820                                    ;
2821  012464  012701  000004  CHEC33:  MOV     #4,R1           ;INIT COUNTER
2822  012470  022522            1$:     CMP     (R5)+,(R2)+     ;IS DATA CORRECT
2823  012472  001403                    BEQ     2$              ;YES GO ON
2824                                                            ;NO. GO TO ERROR
2825  012474  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
2826  012476  000177                    .WORD   177             ;UNIQUE ERROR NUMBER
2827  012500  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
2828  012502  077106            2$:     SOB     R1,1$           ;ARE WE DONE
2829  012504  000207                    RTS     PC              ;RETURN
2830                                    ;
2831  012506  170000  TS33D0:  .WORD   170000
2832  012510  003541            .WORD   3541
2833  012512  177777            .WORD   177777
2834  012514  172710            .WORD   172710
2835  012516  070000  TS33D1:  .WORD   70000
2836  012520  003541            .WORD   3541
2837  012522  177777            .WORD   177777
2838  012524  172710            .WORD   172710
2839  012526  000177  TS33D2:  .WORD   177
2840  012530  100000            .WORD   100000
2841  012532  177777            .WORD   177777
2842  012534  177007            .WORD   177007
2843  012536  070000  TS33D3:  .WORD   70000
2844  012540  003541            .WORD   3541
2845  012542  177777            .WORD   177777
2846  012544  172710            .WORD   172710
```

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2847  012546  170000                TS33D4: .WORD   170000
2848  012550  003541                        .WORD   3541
2849  012552  177777                        .WORD   177777
2850  012554  172710                        .WORD   172710
2851  012556  000000                TS33D5: .WORD   0
2852  012560  000000                        .WORD   0
2853  012562  000000                        .WORD   0
2854  012564  000000                        .WORD   0
2855  012566                        FIN33:
2856                                ;
2857  012566                        MFSRCM0:
2858                                ;;*************************************************************************
2859                                ;*TEST 36        TEST LDD MODE 0, ILLEGAL AC7
2860                                ;;*************************************************************************
2861  012566                        TST36:
2862  012566  005267  166212               INC     $TESTN                  ;INCREMENT TEST NUMBER
2863  012572  012704  047600               MOV     #47600,R4               ;SETUP FPP STATUS
2864  012576  170104                       LDFPS   R4                      ;LOAD FP STATUS
2865  012600  012702  001106               MOV     #RECFEC,R2              ;POINT TO RECEIVED FEC MEMORY
2866  012604  172407               1$:     LDD     R7,AC0                  ;*TEST INSTRUCTION
2867                                                                        ;LOAD AC0 FROM ILLEGAL AC7
2868  012606  170201                       STFPS   R1                      ;SAVE FPP STATUS
2869  012610  022701  147600               CMP     #147600,R1              ;VERIFY FER BIT SET
2870  012614  001403                       BEQ     2$                      ;BRANCH IF GOOD ERROR CONDITION
2871  012616  104000                       ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2872  012620  000200                       .WORD   200                     ;UNIQUE ERROR NUMBER
2873  012622  002013                       .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2874                                                                    ;THE FER BIT DIDNT SET
2875  012624  170312               2$:     STST    (R2)                    ;SAVE FEC AND FEA
2876  012626  022722  000002               CMP     #2,(R2)+                ;VERIFY FEC CONTENTS
2877  012632  001403                       BEQ     3$                      ;BRANCH IF GOOD
2878  012634  104000                       ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2879  012636  000201                       .WORD   201                     ;UNIQUE ERROR NUMBER
2880  012640  002013                       .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2881                                                                    ;FEC NE 2 (OPCODE ERROR)
2882  012642  022722  012604       3$:     CMP     #1$,(R2)+               ;VERFIY FEA CONTENTS
2883  012646  001403                       BEQ     4$                      ;BRANCH FI GOOD
2884  012650  104000                       ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2885  012652  000202                       .WORD   202                     ;UNIQUE ERROR NUMBER
2886  012654  002013                       .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2887                                                                    ;FEA NOT CORRECT ERROR ADDRESS
2888  012656                        4$:
2889
2890
2891  012656                        MLDDM2:
2892                                ;;*************************************************************************
2893                                ;*TEST 37        TEST LDD MODE2
2894                                ;;*************************************************************************
2895  012656                        TST37:
2896  012656  005267  166122               INC     $TESTN                  ;INCREMENT TEST NUMBER
2897  012662  012701  001126               MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
2898  012666  012704  001176               MOV     #TAB1,R4                ;POINT TO GOOD DATA
2899  012672  012702  047750               MOV     #47750,R2               ;LOAD GOOD STATUS
2900  012676  170102                       LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
2901  012700  172424                       LDD     (R4)+,AC0               ;***TEST INSTRUCTION - MODE 2***
2902  012702  170203                       STFPS   R3                      ;SAVE TEST FPP STATUS
```

```
2903  012704  174021                        STD     AC0,(R1)+               ;SAVE TEST RESULT MODE 2
2904  012706  020203                        CMP     R2,R3                   ;VERIFY FPP STATUS
2905  012710  001403                        BEQ     1$                      ;BRANCH IF GOOD
2906  012712  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2907  012714  000203                        .WORD   203                     ;UNIQUE ERROR NUMBER
2908  012716  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2909                                                                        ;BAD FPP STSTUS
2910  012720  022704  001206        1$:     CMP     @TAB1+10,R4                     ;VERFIY AUTO-INCR
2911  012724  001403                        BEQ     2$                      ;BRANCH IF GOOD
2912  012726  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2913  012730  000204                        .WORD   204                     ;UNIQUE ERROR NUMBER
2914  012732  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2915                                                                ;BAD AUTO-INCR
2916  012734  012704  001176        2$:     MOV     @TAB1,R4                        ;POINT TO RECEIVED DATA
2917  012740  162701  000010                SUB     #10,R1                  ;RETURN R1 TO PROPER VALUE
2918  012744  004767  167176                JSR     R7,DATVER               ;VERFIY DATA FROM FPP
2919  012750  005767  166064                TST     COUNT                   ;SEE IF COUNTER=0
2920  012754  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
2921                                                                        ;BAD DATA FROM FPP
2922  012756  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2923  012760  000205                        .WORD   205                     ;UNIQUE ERROR NUMBER
2924  012762  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2925  012764                        3$:
2926
2927
2928  012764                        ;
                                    MLDDM3:
2929                                ;;**********************************************************************
2930                                ;*TEST 40        TEST LDD MODE 3
2931                                ;;**********************************************************************
2932  012764                        TST40:
2933  012764  005267  166014                INC     $TESTN                  ;INCREMENT TEST NUMBER
2934  012770  012737  001126  001140        MOV     #RECDST,@#TSTLOC+2      ;POINT TO RECEIVED DATA LOCATION
2935  012776  012701  001140                MOV     #TSTLOC+2,R1            ;SETUP STD IN MODE 3
2936  013002  012737  001206  001136        MOV     #TAB2,@#TSTLOC          ;POINT TO DATA TABLE
2937  013010  012704  001136                MOV     #TSTLOC,R4              ;POINT TO GOOD DATA
2938  013014  012702  047750                MOV     #47750,R2               ;LOAD GOOD STATUS
2939  013020  170102                        LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
2940  013022  172434                        LDD     @(R4)+,AC0              ;***TEST INSTRUCTION - MODE 2***
2941  013024  170203                        STFPS   R3                      ;SAVE TEST FPP STATUS
2942  013026  174031                        STD     AC0,@(R1)+              ;SAVE TEST RESULT IN MODE 3
2943  013030  022703  047740                CMP     #47740,R3               ;VERIFY FPP STATUS
2944  013034  001403                        BEQ     1$                      ;BRANCH IF GOOD
2945  013036  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2946  013040  000206                        .WORD   206                     ;UNIQUE ERROR NUMBER
2947  013042  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2948                                                                        ;BAD FPP STATUS
2949  013044  022704  001140        1$:     CMP     #TSTLOC+2,R4            ;VERFIY AUTO-INCR
2950  013050  001403                        BEQ     2$                      ;BAD AUTO-DEC ON LDD
2951  013052  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2952  013054  000207                        .WORD   207                     ;UNIQUE ERROR NUMBER
2953  013056  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2954                                                                        ;BAD AUTO-INC
2955  013060  022701  001142        2$:     CMP     #TSTLOC+4,R1            ; TEST STD AUTO-INC
2956  013064  001403                        BEQ     3$                      ;BRANCH IF GOOD
2957  013066  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2958  013070  000210                        .WORD   210                     ;UNIQUE ERROR NUMBER
```

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2959  013072  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2960                                                                         ;BAD AUTO INCR
2961  013074  012704  001206          3$:   MOV     #TAB2,R4                ;POINT TO RECEIVED DATA
2962  013100  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA
2963  013104  004767  167036                JSR     R7,DATVER               ;VERFIY DATA FROM FPP
2964  013110  005767  165724                TST     COUNT                   ;SEE IF COUNTER=0
2965  013114  001403                        BEQ     4$                      ;BRANCH IF GOOD COMPARE
2966  013116  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2967  013120  000211                        .WORD   211                     ;UNIQUE ERROR NUMBER
2968  013122  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2969                                                                         ;BAD DATA FROM FPP
2970  013124                          4$:
2971
2972  013124                          MLDDM4:
2973                                  ;;*****************************************************************
2974                                  ;*TEST 41        TEST LDF, STD MODE 4
2975                                  ;;*****************************************************************
2976  013124                          TST41:
2977  013124  005267  165654                INC     $TESTN                  ;INCREMENT TEST NUMBER
2978  013130  012701  001132                MOV     #RECDST+4,R1            ;POINT TO RECEIVED DATA LOCATION
2979  013134  012704  001222                MOV     #TAB3+4,R4              ;POINT TO GOOD DATA
2980  013140  012705  001256                MOV     #TAB6,R5                ;CLEAR OUT AC0
2981  013144  170127  000200                LDFPS   #200                    ;SET TO DOUBLE
2982  013150  172415                        LDD     (R5),AC0                ;AC0=0
2983  013152  012702  047550                MOV     #47550,R2               ;LOAD GOOD STATUS FLOATING
2984  013156  170102                        LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
2985  013160  172444                        LDF     -(R4),AC0               ;*TEST INSTRUCTION - MODE 4
2986  013162  170203                        STFPS   R3                      ;SAVE TEST FPP STATUS
2987  013164  012702  047750                MOV     #47750,R2               ;SET TO DOUBLE MODE
2988  013170  170102                        LDFPS   R2                      ;SET FPP TO DOUBLE
2989  013172  174041                        STD     AC0,-(R1)               ;SAVE TEST RESULT
2990  013174  022703  047540                CMP     #47540,R3               ;VERIFY FPP STATUS
2991  013200  001403                        BEQ     1$                      ;BRANCH IF GOOD
2992  013202  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2993  013204  000212                        .WORD   212                     ;UNIQUE ERROR NUMBER
2994  013206  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
2995                                                                         ;BAD FPP STATUS
2996  013210  022704  001216          1$:   CMP     #TAB3,R4                ;VERFIY AUTO-DEC
2997  013214  001403                        BEQ     2$                      ;BRANCH IF GOOD
2998  013216  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
2999  013220  000213                        .WORD   213                     ;UNIQUE ERROR NUMBER
3000  013222  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3001                                                                         ;BAD AUTO-INCR
3002  013224  012704  001216          2$:   MOV     #TAB3,R4                ;POINT TO RECEIVED DATA
3003  013230  004767  166712                JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3004  013234  005767  165600                TST     COUNT                   ;SEE IF COUNTER=0
3005  013240  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
3006  013242  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3007  013244  000214                        .WORD   214                     ;UNIQUE ERROR NUMBER
3008  013246  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3009                                                                         ;BAD DATA FROM FPP
3010  013250                          3$:
3011
3012  013250                          MLDDM5:
3013                                  ;;*****************************************************************
3014                                  ;*TEST 42        TEST LDD MODE 5
```

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3015                                    ;;*****************************************************************
3016  013250                            TST42:
3017  013250  005267  165530                   INC     $TESTN                  ;INCREMENT TEST NUMBER
3018  013254  012701  001126                   MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3019  013260  012704  001140                   MOV     #TSTLOC+2,R4            ;POINT TO GOOD DATA
3020  013264  012737  001176  001136           MOV     #TAB1,@#TSTLOC          ;SET UP MODE 5 POINTER TO DATA
3021  013272  012702  047750                   MOV     #47750,R2               ;LOAD GOOD STATUS
3022  013276  170102                           LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3023  013300  172454                           LDD     @-(R4),AC0              ;*TEST INSTRUCTION - MODE 5
3024  013302  170203                           STFPS   R3                      ;SAVE TEST FPP STATUS
3025  013304  174011                           STD     AC0,(R1)                ;SAVE TEST RESULT
3026  013306  020203                           CMP     R2,R3                   ;VERIFY FPP STATUS
3027  013310  001403                           BEQ     1$                      ;BRANCH IF GOOD
3028  013312  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3029  013314  000215                           .WORD   215                     ;UNIQUE ERROR NUMBER
3030  013316  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3031                                                                           ;BAD FPP STATUS
3032  013320  022704  001136           1$:     CMP     #TSTLOC,R4              ;VERFIY AUTO-DEC
3033  013324  001403                           BEQ     2$                      ;BRANCH IF GOOD
3034  013326  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3035  013330  000216                           .WORD   216                     ;UNIQUE ERROR NUMBER
3036  013332  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3037                                                                           ;BAD AUTO-DEC
3038  013334  012704  001176           2$:     MOV     #TAB1,R4                ;POINT TO EXPECTED DATA
3039  013340  004767  166602                   JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3040  013344  005767  165470                   TST     COUNT                   ;SEE IF COUNTER=0
3041  013350  001403                           BEQ     3$                      ;BRANCH IF GOOD COMPARE
3042  013352  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3043  013354  000217                           .WORD   217                     ;UNIQUE ERROR NUMBER
3044  013356  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3045                                                                           ;BAD DATA FROM FPP
3046  013360                            3$:
3047
3048  013360                            MLDDM6:
3049                                    ;;*****************************************************************
3050                                    ;*TEST 43        TEST LDD MODE 6
3051                                    ;;*****************************************************************
3052  013360                            TST43:
3053  013360  005267  165420                   INC     $TESTN                  ;INCREMENT TEST NUMBER
3054  013364  012701  001326                   MOV     #RECDST+200,R1          ;POINT TO RECEIVED DATA LOCATION
3055  013370  012704  001006                   MOV     #TAB2-200,R4            ;SETUP R4 FOR MODE 6
3056  013374  012702  047750                   MOV     #47750,R2               ;LOAD GOOD STATUS
3057  013400  170102                           LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3058  013402  172464  000200                   LDD     200(R4),AC0             ;LDD MODE 6
3059  013406  170203                           STFPS   R3                      ;SAVE TEST FPP STATUS
3060  013410  174061  177600                   STD     AC0,-200(R1)            ;SAVE TEST RESULT
3061  013414  022703  047740                   CMP     #47740,R3               ;VERIFY FPP STATUS
3062  013420  001403                           BEQ     1$                      ;BRANCH IF GOOD
3063  013422  104000                           ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3064  013424  000220                           .WORD   220                     ;UNIQUE ERROR NUMBER
3065  013426  002013                           .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3066                                                                           ;BAD FPP STATUS
3067  013430  162701  000200           1$:     SUB     #200,R1                 ;R1=RECDST
3068  013434  062704  000200           2$:     ADD     #200,R4                 ;POINT TO EXPECTED DATA
3069  013440  004767  166502                   JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3070  013444  005767  165370                   TST     COUNT                   ;SEE IF COUNTER=0
```

```
3071  013450  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
3072  013452  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3073  013454  000221                        .WORD   221                     ;UNIQUE ERROR NUMBER
3074  013456  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3075                                                                        ;BAD DATA FROM FPP
3076  013460                          3$:
3077
3078  013460                          MLDDM7:
3079                                  ;;**********************************************************************
3080                                  ;*TEST 44        TEST LDD MODE 7
3081                                  ;;**********************************************************************
3082  013460                          TST44:
3083  013460  005267  165320                INC     $TESTN                  ;INCREMENT TEST NUMBER
3084  013464  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3085  013470  005004                        CLR     R4                      ;R4=0
3086  013472  012727  001176  001136        MOV     #TAB1,@TSTLOC           ;POINTER FOR MODE 7 GOOD DATA
3087  013500  012702  047750                MOV     #47750,R2               ;LOAD GOOD STATUS
3088  013504  170102                        LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3089  013506  172474  001136                LDD     @TSTLOC(R4),AC0         ;*TEST INSTRUCTION - MODE 7
3090  013512  170203                        STFPS   R3                      ;SAVE TEST FPP STATUS
3091  013514  174011                        STD     AC0,(R1)                ;SAVE TEST RESULT
3092  013516  020203                        CMP     R2,R3                   ;VERIF' FPP STATUS
3093  013520  001403                        BEQ     1$                      ;BRANCH IF GOOD
3094  013522  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3095  013524  000222                        .WORD   222                     ;UNIQUE ERROR NUMBER
3096  013526  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3097                                                                        ;BAD FPP STATUS
3098  013530  005704                  1$:   TST     R4                      ;VERFIY CONTENTS OF R4
3099  013532  001403                        BEQ     2$                      ;BRANCH IF GOOD
3100  013534  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3101  013536  000223                        .WORD   223                     ;UNIQUE ERROR NUMBER
3102  013540  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3103                                                                        ;BAD R4
3104  013542  012704  001176          2$:   MOV     #TAB1,R4                ;POINT TO RECEIVED DATA
3105  013546  004767  166374                JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3106  013552  005767  165262                TST     COUNT                   ;SEE IF COUNTER=0
3107  013556  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
3108  013560  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3109  013562  000224                        .WORD   224                     ;UNIQUE ERROR NUMBER
3110  013564  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3111                                                                        ;BAD DATA FROM FPP
3112  013566                          3$:
3113
3114  013566                          MLDM27:
3115                                  ;;**********************************************************************
3116                                  ;*TEST 45        TEST LDD MODE 27 - ONLY 16 BITS ARE LOADED OR STORED
3117                                  ;;**********************************************************************
3118  013566                          TST45:
3119  013566  005267  165212                INC     $TESTN                  ;INCREMENT TEST NUMBER
3120  013572  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA LOCATION
3121  013576  012704  001236                MOV     #TAB5,R4                ;POINT TO GOOD DATA
3122  013602  012702  047750                MOV     #47750,R2               ;LOAD GOOD STATUS
3123  013606  005005                        CLR     R5                      ;R5=0
3124  013610  170102                        LDFPS   R2                      ;LOAD FPP STATUS - DOUBLE,ID
3125  013612  172427  043243                LDD     #5205,AC0               ;*TEST INSTRUCTION - MODE 27
3126  013616  005205                        INC     R5
```

```
3127  013620  005205                        INC     R5
3128  013622  005205                        INC     R5                      ; TEST PROPER PC PATH
3129  013624  022705  000003                CMP     #3,R5                   ;VERIFY ONLY 3 PC INCREMENT
3130  013630  001403                        BEQ     1$                      ;BRANCH IF PROPER PC ACTION
3131  013632  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3132  013634  000225                        .WORD   225                     ;UNIQUE ERROR NUMBER
3133  013636  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3134                                                                        ;BAD MODE 27 LOAD
3135  013640  170203                1$:     STFPS   R3                      ;SAVE TEST FPP STATUS
3136  013642  174011                        STD     AC0,(R1)                ;SAVE TEST RESULT
3137  013644  022703  047740                CMP     #47740,R3               ;VERIFY FPP STATUS
3138  013650  001403                        BEQ     2$                      ;BRANCH IF GOOD
3139  013652  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3140  013654  000226                        .WORD   226                     ;UNIGUE ERROR NUMBER
3141  013656  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3142                                                                        ;BAD FPP STATUS
3143  013660  004767  166262        2$:     JSR     R7,DATVER               ;VERFIY DATA FROM FPP
3144  013664  005767  165150                TST     COUNT                   ;SEE IF COUNTER=0
3145  013670  001403                        BEQ     3$                      ;BRANCH IF GOOD COMPARE
3146  013672  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3147  013674  000227                        .WORD   227                     ;UNIQUE ERROR NUMBER
3148  013676  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3149                                                                        ;BAD DATA FROM FPP
3150  013700                        3$:
3151
3152  013700                        MNNRM1:
3153                                ;;*****************************************************************
3154                                ;*TEST 46       TEST ADDF, ADDD, SUBF, SUBD - AC0=0 FSRC=0;
3155                                ;;*****************************************************************
3156  013700                        TST46:
3157  013700  005267  165100                INC     $TESTN                  ;INCREMENT TEST NUMBER
3158  013704  012704  001256                MOV     #TAB6,R4                ;POINT TO FSRC TEST DATA
3159  013710  005067  165216                CLR     RECDST+4                ;CLEAR OUT RECEIVED DATA TABLE
3160  013714  005067  165214                CLR     RECDST+6                ;
3161  013720  012702  040000                MOV     #40000,R2               ;SET UP GOOD STATUS
3162  013724  170102                        LDFPS   R2                      ;LOAD FPP STATUS, FLOATING
3163  013726  172414                        LDF     (R4),AC0                ;LOAD AC0 WITH 0
3164  013730  172014                        ADDF    (R4),AC0                ;0+0
3165  013732  170203                        STFPS   R3                      ;SAVE STATUS
3166  013734  022703  040004                CMP     #40004,R3               ;VERIFY STATUS
3167  013740  001403                        BEQ     1$                      ;BRANCH IF GOOD
3168  013742  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3169  013744  000230                        .WORD   230                     ;UNIQUE ERROR NUMBER
3170  013746  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3171                                                                        ;BAD FPP STATUS
3172  013750  012701  001126        1$:     MOV     #RECDST,R1              ;POINT TO RECEIVERD DATA
3173  013754  174011                        STF     AC0,(R1)                ;SAVE DATA
3174  013756  004767  166164                JSR     R7,DATVER               ;VERIFY DATA
3175  013762  005767  165052                TST     COUNT                   ;
3176  013766  001403                        BEQ     2$                      ;BRANCH IF GOOD
3177  013770  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3178  013772  000231                        .WORD   231                     ;UNIQUE ERROR NUMBER
3179  013774  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3180                                                                        ;BAD DATA IN AC0
3181  013776  012702  040200        2$:     MOV     #40200,R2               ;LOAD FLOATING STATUS
3182  014002  170102                        LDFPS   R2                      ;
```

```
014004  172414                          LDD     (R4),ACO                ;LOAD ACO WITH 0
014006  172014                          ADDD    (R4),ACO                ;*TEST INSTRUCTION
014010  174011                          STD     ACO,(R1)                ;SAVE DATA
014012  170203                          STFPS   R3                      ;SAVE FPS
014014  022703  040204                  CMP     #40204,R3               ;VERFIY STATUS
014020  001403                          BEQ     3$                      ;BRANCH IF GOOD
014022  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014024  000232                          .WORD   232                     ;UNIQUE ERROR NUMBER
014026  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
014030  004767  166112          3$:     JSR     R7,DATVER                       ;VERFIY DATA
014034  005737  001040                  TST     @#COUNT                 ;VERIFY RESULT
014040  001403                          BEQ     44$                     ;BRANCH IF GOOD
014042  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014044  000233                          .WORD   233                     ;UNIQUE ERROR NUMBER
014046  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO
014050  172414                  44$:    LDD     (R4),ACO                ;SETUP DATA
014052  173014                          SUBD    (R4),ACO                ;*TEST INSTRUCTION
014054  170203                          STFPS   R3                      ;SAVE STATUS
014056  022703  040204                  CMP     #40204,R3                       ;VERFIY STATUS
014062  001403                          BEQ     4$                      ;BRANCH IF GOOD
014064  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014066  000234                          .WORD   234                     ;UNIQUE ERROR NUMBER
014070  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
014072  174011                  4$:     STD     ACO,(R1)                ;SAVE ACO DATA
014074  004767  166046                  JSR     R7,DATVER                       ;VERFIY DATA
014100  005767  164734                  TST     COUNT                   ;
014104  001403                          BEQ     5$                      ;BRANCH IF GOOD
014106  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014110  000235                          .WORD   235                     ;UNIQUE ERROR NUMBER
014112  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO
014114  170127  000000          5$:     LDFPS   #0                      ;STORE FPP STATUS
014120  172414                          LDD     (R4),ACO                ;LOAD ACO
014122  173014                          SUBF    (R4),ACO                        ;0-0
014124  170203                          STFPS   R3                      ;SAVE STATUS
014126  174011                          STD     ACO,(R1)                ;SAVE ACO
014130  022703  000004                  CMP     #4,R3                   ;VERFIY STATUS
014134  001403                          BEQ     6$                      ;BRANCH IF GOOD
014136  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014140  000236                          .WORD   236                     ;UNIQUE ERROR NUMBER
014142  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
014144  004767  165776          6$:     JSR     R7,DATVER                       ;VERIFY DATAT
014150  005767  164664                  TST COUNT                       ;
014154  001403                          BEQ     7$                      ;BRANC IF GOOD
014156  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014160  000237                          .WORD   237                     ;UNIQUE ERROR NUMBER
014162  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO
014164                          7$:


014164                          MNNRM2:
```

```
                                ;;*****************************************************************
                                ;*TEST 47        TEST ADDF,SUBD - FSRC=0, ACO NE 0
                                ;;*****************************************************************
014164                          TST47:
014164  005267  164614                  INC     $TESTN                  ;INCREMENT TEST NUMBER
014170  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
014174  012705  001256                  MOV     #TAB6,R5                ;POINT TO SOURCE DATA TABLE
014200  012704  001206                  MOV     #TAB2,R4                ;POINT TO ACO DATA
014204  170127  000200                  LDFPS   #200                    ;SET TO DOUBLE FOR CLEAR
014210  172415                          LDD     (R5),AC0                ;
014212  005002                          CLR     R2                      ;SETUP FPP STATUS
014214  170102                          LDFPS   R2                      ;LOAD FPS
014216  172414                          LDF     (R4),AC0                ;LOAD ACO
014220  172015                          ADDF    (R5),AC0                        ;*TEST INSTRUCTION
014222  170203                          STFPS   R3                      ;SAVE STATUS
014224  174011                          STF     AC0,(R1)                ;SAVE ACO
014226  022703  000000                  CMP     #0,R3                   ;VERFIY NEGATIVE RESULT
014232  001403                          BEQ     1$                      ;BRANCH IF GOOD
014234  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014236  000240                          .WORD   240                     ;UNIQUE ERROR NUMBER
014240  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
014242  012704  001226          1$:     MOV     #TAB4,R4                ;POINT TO EXPECTED DATA
014246  004767  165674                  JSR     R7,DATVER                       ;VERFIY ACO
014252  005767  164562                  TST     COUNT                   ;CHECK RESULT
014256  001403                          BEQ     2$                      ;BRANCH IF GOOD
014260  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014262  000241                          .WORD   241                     ;UNIQUE FRROR NUMBER
014264  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO
014266  170127  000200          2$:     LDFPS   #200                    ;SET STATUS TO DUOBLE NODE
014272  172414                          LDD     (R4),AC0                        ;LOAD ACO WITH A VALUE
014274  173015                          SUBD    (R5),AC0                        ;*TEST INSTRUCTION
014276  170203                          STFPS   R3                              ;SAVE FPP STATUS
014300  174011                          STD     AC0,(R1)                        ;SAVE ACO
014302  022703  000200                  CMP     #200,R3                 ;VERIFY RESULT
014306  001403                          BEQ     3$                              ;BRANCH IF GOOD
014310  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014312  000242                          .WORD   242                     ;UNIQUE ERROR NUMBER
014314  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD SUBD
014316  012704  001226          3$:     MOV     #TAB4,R4                        ;POINT TO EXPECTED
014322  004767  165620                  JSR     R7,DATVER                       ;VERIFY ACO
014326  005767  164506                  TST     COUNT                           ;
014332  001403                          BEQ     4$                              ;BRANCH IF GOOD ACO
014334  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014336  000243                          .WORD   243                     ;UNIQUE ERROR NUMBER
014340  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO
014342                          4$:


014342                          MNNRM3:
                                ;;*****************************************************************
                                ;*TEST 50        TEST ADDD, SUBF   FSRC NE 0, ACO=0
                                ;;*****************************************************************
```

```
3295  014342
3296  014342  005267  164436          TST50:  INC     $TESTN          ;INCREMENT TEST NUMBER
3297  014346  012701  001126                  MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3298  014352  012705  001256                  MOV     #TAB6,R5        ;POINT TO AC0 DATA TABLE
3299  014356  012704  001176                  MOV     #TAB1,R4        ;POINT TO FSRC DATA
3300  014362  012702  000200                  MOV     #200,R2         ;SETUP FPP STATUS
3301  014366  170102                          LDFPS   R2              ;LOAD FPS
3302  014370  172415                          LDD     (R5),AC0        ;LOAD AC0
3303  014372  172014                          ADDD    (R4),AC0                ;*TEST INSTRUCTION
3304  014374  170203                          STFPS   R3              ;SAVE STATUS
3305  014376  174011                          STD     AC0,(R1)        ;SAVE AC0
3306  014400  022703  000210                  CMP     #210,R3         ;VERFIY NEGATIVE RESULT
3307  014404  001403                          BEQ     1$              ;BRANCH IF GOOD
3308  014406  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3309  014410  000244                          .WORD   244             ;UNIQUE ERROR NUMBER
3310  014412  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3311                                                          ;BAD FPS
3312  014414  004767  165526          1$:     JSR     R7,DATVER               ;VERFIY AC0
3313  014420  005767  164414                  TST     COUNT           ;CHECK RESULT
3314  014424  001403                          BEQ     2$              ;BRANCH IF GOOD
3315  014426  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3316  014430  000245                          .WORD   245             ;UNIQUE ERROR NUMBER
3317  014432  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3318                                                          ;BAD AC0
3319  014434  170127  000200          2$:     LDFPS   #200            ;SET STATUS TO DUOBLE MODE
3320  014440  172415                          LDF     (R5),AC0        ;LOAD AC0 WITH A VALUE
3321  014442  173014                          SUBD    (R4),AC0                ;*TEST INSTRUCTION
3322  014444  170203                          STFPS   R3              ;SAVE FPP STATUS
3323  014446  174011                          STF     AC0,(R1)                ;SAVE AC0
3324  014450  022703  000200                  CMP     #200,R3         ;VERIFY RESULT
3325  014454  001403                          BEQ     3$              ;BRANCH IF GOOD
3326  014456  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3327  014460  000246                          .WORD   246             ;UNIQUE ERROR NUMBER
3328  014462  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3329                                                          ;BAD SUBD
3330  014464  012704  001446          3$:     MOV     #TAB10,R4               ;POINT TO EXPECTED DATA
3331  014470  004767  165452                  JSR     R7,DATVER               ;VERIFY AC0
3332  014474  005767  164340                  TST     COUNT           ;
3333  014500  001403                          BEQ     4$              ;BRANCH IF GOOD AC0
3334  014502  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3335  014504  000247                          .WORD   247             ;UNIQUE ERROR NUMBER
3336  014506  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3337                                                          ;BAD AC0
3338  014510                          4$:
3339
3340
3341  014510                          MNARM4:
3342                                  ;;*******************************************************************
3343                                  ;*TEST 51        TEST  ADDF, SUBD - EXP(AC0) * EXP(FSRC)
3344                                  ;;*******************************************************************
3345  014510                          TST51:
3346  014510  005267  164270                  INC     $TESTN          ;INCREMENT TEST NUMBER
3347  014514  012702  003240                  MOV     #3240,R2        ;SET FIU,FD,FT
3348  014520  170102                          LDFPS   R2
3349  014522  012704  001276                  MOV     #TAB7,R4        ;SET FSRC
3350  014526  012705  001306                  MOV     #TAB8,R5        ;SETUP AC0
```

```
3351  014532  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA
3352  014536  172415                  LDD     (R5),AC0                ;LOAD AC0
3353  014540  172014                  ADDD    (R4),AC0                ;*TEST INSTRUCTION
3354  014542  174011                  STD     AC0,(R1)                ;SAVE TEST RESULT
3355  014544  012704  001316          MOV     #TAB9,R4                ;POINT TO EXPECTED DATA
3356  014550  004767  165372          JSR     R7,DATVER               ;VERIFY AC0 DATA
3357  014554  005767  164260          TST     COUNT                   ;
3358  014560  001403                  BEQ     1$                      ;BRANCH IF GOOD
3359  014562  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3360  014564  000250                  .WORD   250                     ;UNIQUE ERROR NUMBER
3361  014566  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3362                                                          ;BAD ADDD
3363  014570  012704  001306  1$:     MOV     #TAB8,R4                ;
3364  014574  012703  001306          MOV     #TAB8,R3                ;SETUP SAME AC0
3365  014600  012702  003200          MOV     #3200,R2                ;ROUND MODE
3366  014604  170102                  LDFPS   R2
3367  014606  172413                  LDD     (R3),AC0                ;LOAD AC0
3368  014610  061400                  ADD     (R4),AC0                ;*TEST INSTRUCTION
3369  014612  174011                  STD     AC0,(R1)                ;SAVE DATA
3370  014614  004767  165326          JSR     R7,DATVER               ;VERIFY AC0
3371  014620  005767  164214          TST     COUNT
3372  014624  001403                  BEQ     2$                      ;BRANCH IF GOOD
3373  014626  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3374  014630  000251                  .WORD   251                     ;UNIQUE ERROR NUMBER
3375  014632  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3376                                                          ;BAD ROUND RESULT
3377  014634          2$:
3378
3379
3380  014634          MXDF1:
3381                  ;;*****************************************************************
3382                  ;*TEST 52       TEST ADD - EXP(FSRC) .GT. EXP(AC0)
3383                  ;;*****************************************************************
3384  014634          TST52:
3385  014634  005267  164144                  INC     #TESTN                  ;INCREMENT TEST NUMBER
3386  014640  012702  003200                  MOV     #3200,R2                ;R2=FPP STATUS
3387  014644  170102                          LDFPS   R2                      ;LOAD FPS STATUS
3388  014646  012704  001336                  MOV     #TAB11,R4               ;POINT TO FSRC DATA
3389  014652  012701  001126                  MOV     #RECDST,R1              ;POINT TO AC0 RESULT
3390  014656  012705  001326                  MOV     #TAB10,R5               ;POINT TO AC0 DATA
3391  014662  172415                          LDD     (R5),AC0                ;LOAD AC0 DATA
3392  014664  172014                          ADDD    (R4),AC0                ;*TEST INSTRUCTIONS
3393  014666  170203                          STFPS   R3                      ;SAVE FPP STATUS
3394  014670  174011                          STD     AC0,(R1)                ;SAVE AC0 DATA
3395  014672  022703  003200                  CMP     #3200,R3                ;VERIFY FPP STATUS
3396  014676  001403                          BEQ     1$                      ;BRANCH IF GOOD
3397  014700  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3398  014702  000252                          .WORD   252                     ;UNIQUE ERROR NUMBER
3399  014704  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3400                                                                  ;BAD FPP STATUS
3401  014706  012704  001346          1$:     MOV     #TAB11A,R4              ;POINT TO EXPECTED DATA
3402  014712  004767  165230                  JSR     R7,DATVER               ;VERIFY CONTENTS OF AC0
3403  014716  005767  164116                  TST     COUNT                   ;
3404  014722  001403                          BEQ     2$                      ;BRANCH IF GOOD AC0
3405  014724  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3406  014726  000253                          .WORD   253                     ;UNIQUE ERROR NUMBER
```

D6


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014730  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO, SHOULD = FSRC
014732  012704  001356          2$:     MOV     #TAB12,R4               ;POINT TO FSRC DATA
014736  172415                          LDD     (R5),ACO                ;ACO
014740  172014                          ADDD    (R4),ACO                ;*TEST INSTRUCTION
014742  012704  001376                  MOV     #TAB13B,R4              ;POINT TO EXPECTED RESULT
014746  174011                          STD     ACO,(R1)                ;SAVE ACO DATA INTO RECDAT
014750  004767  165172                  JSR     R7,DATVER               ;VERIFY DATA
014754  005767  164060                  TST     COUNT
014760  001403                          BEQ     3$                      ;BRANCH IF GOOD DATA
014762  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
014764  000254                          .WORD   254                     ;UNIQUE ERROR NUMBER
014766  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD ACO DATA
014770  012702  003000          3$:     MOV     #3000,R2                ;GET FPP STATUS DATA
014774  012704  001406                  MOV     #TAB14,R4               ;POINT TO FSRC DATA
015000  012705  001416                  MOV     #TAB15,R5               ;POINT TO ACO DATA
015004  172415                          LDD     (R5),ACO                ;LOAD ACO
015006  170102                          LDFPS   R2                      ;FPP STATUS = FLOAT, INTERRUPTS ENABLE
015010  172014                          ADDF    (R4),ACO                ;*TEST INSTRUCTION
015012  170127  000200                  LDFPS   #200                    ;RESET TO DOUBLE
015016  174011                          STD     ACO, (R1)               ;RECDST=ACO
015020  012704  001326                  MOV     #TAB10,R4               ;POINT TO GOOD DATA
015024  004767  165116                  JSR     R7,DATVER                       ;VERFIY CONTENTS OF ACO
015030  005767  164004                  TST     COUNT                   ;
015034  001403                          BEQ     4$                      ;BRANCH IF GOOD
015036  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
015040  000255                          .WORD   255                     ;UNIQUE ERROR NUMBER
015042  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FLOATING ADD
015044  012705  001426          4$:     MOV     #TAB16,R5               ;POINT TO ACO DATA
015050  170102                          LDFPS   R2                      ;FPP STATUS = FLOAT
015052  172415                          LDF     (R5),ACO                ;LOAD ACO
015054  172014                          ADDF    (R4),ACO                ;*TEST INSTRUCTION
015056  174011                          STD     ACO,(R1)                        ;SAVE ACO  DATA
015060  012704  001436                  MOV     #TAB17,R4               ;POINT TO GOOD DATA
015064  004767  165056                  JSR     R7,DATVER
015070  005767  163744                  TST     COUNT
015074  001403                          BEQ     5$                      ;BRANCH IF GOOD
015076  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
015100  000256                          .WORD   256                     ;UNIQUE ERROR NUMBER
015102  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FLOATING ADD
015104                          5$:



015104                          MNGOP:
                                ;;*****************************************************************
                                ;*TEST 53        TEST ADDD WITH NEGATIVE OPERANDS
                                ;;*****************************************************************
015104                          TST53:
015104  005267  163674                  INC     $TESTN                  ;INCREMENT TEST NUMBER
015110  012702  003200                  MOV     #3200,R2                ;LOAD FPS VALUE
015114  170102                          LDFPS   R2                      ;
015116  012704  001456                  MOV     #TAB21,R4               ;DATA ADDRESS FOR ACO AND FSR
```

```
3463  015122  172414                    LDD     (R4),AC0        ;AC0=100200 0 0 0
3464  015124  172014                    ADDD    (R4),AC0        ;*TEST INSTRUCTION
3465  015126  170203                    STFPS   R3              ;SAVE STATUS
3466  015130  012701  001126            MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3467  015134  174011                    STD     AC0,(R1)        ;SAVE AC0 DATA
3468  015136  022703  003210            CMP     #3210,R3        ;VERIFY STATUS
3469  015142  001403                    BEQ     1$              ;BRANCH IF GOOD
3470  015144  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3471  015146  000257                    .WORD   257             ;UNIQUE ERROR NUMBER
3472  015150  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3473                                    ;
3474  015152  012704  001466    1$:     MOV     #TAB22,R4       ;POINT TO EXPECTED DATA
3475  015156  004767  164764            JSR     R7,DATVER       ;
3476  015162  005767  163652            TST     COUNT           ;VERIFY DATA
3477  015166  001403                    BEQ     2$              ;BRANCH IF GOOD
3478  015170  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3479  015172  000260                    .WORD   260             ;UNIQUE ERROR NUMBER
3480  015174  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3481                                    ;
3482                            ;       !-FSRC! * !AC0!
3483  015176  012704  001456    2$:     MOV     #TAB21,R4       ;POINT TO FSRC DATA
3484  015202  012701  001476            MOV     #TAB23,R1       ;POINT TO AC0 DATA
3485  015206  012737  015230  000244    MOV     #101$,@#FPVEC   ;SETUP FP VECTOR
3486  015214  172411                    LDD     (R1),AC0        ;LOAD AC0
3487  015216  172014                    ADDD    (R4),AC0        ;*TEST INSTRUCTION
3488  015220  170000            100$:   CFCC                    ;COPY FPP CC
3489  015222  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3490  015224  000261                    .WORD   261             ;UNIQUE ERROR NUMBER
3491  015226  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3492                                  ;GO TO ERROR
3493  015230  170203            101$:   STFPS   R3              ;SAVE FPP STATUS
3494  015232  012701  001126            MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3495  015236  174011                    STD     AC0,(R1)        ;SAVE AC0 DATA
3496  015240  022703  103200            CMP     #103200,R3      ;VERIFY STATUS
3497  015244  001403                    BEQ     3$              ;BRANCH IF GOOD
3498  015246  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3499  015250  000262                    .WORD   262             ;UNIQUE ERROR NUMBER
3500  015252  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3501                                  ;BAD STATUS
3502  015254  012605            3$:     MOV     (SP)+,R5        ;GET ERROR PC
3503  015256  020527  015220            CMP     R5,#100$        ;VERIFY ERROR ADDRESS ON STACK
3504  015262  001403                    BEQ     102$            ;BRANCH IF GOOD
3505  015264  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3506  015266  000263                    .WORD   263             ;UNIQUE ERROR NUMBER
3507  015270  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3508                                  ;BAD ERROR RETURN ON STACK
3509  015272  005726            102$:   TST     (SP)+           ;RESTORE STACK
3510  015274  012704  001506            MOV     #TAB24,R4       ;POINT TO EXPECTED DATA TABLE
3511  015300  004767  164642            JSR     R7,DATVER       ;VERIFY DATA
3512  015304  005767  163530            TST     COUNT
3513  015310  001403                    BEQ     4$              ;BRANC IF GOOD
3514  015312  104000                    ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3515  015314  000264                    .WORD   264             ;UNIQUE ERROR NUMBER
3516  015316  002013                    .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3517                                  ;BAD ACO DATA
3518                            ;       !-AC0! * !FSRC!
```

```
3519  015320  012704  001476          4$:   MOV     #TAB23,R4          ;POINT TO FSRC DATA
3520  015324  012701  001456                MOV     #TAB21,R1          ;POINT TO ACO DATA
3521  015330  012737  015360  000244        MOV     #104$,@#FPVEC      ;SETUP FP VECTOR
3522  015336  012702  003200                MOV     #3200,R2           ;LOAD FPS VALUE
3523  015342  170102                       LDFPS   R2                 ;
3524  015344  172411                       LDD     (R1),AC0           ;LOAD AC0 DATA
3525  015346  172014                       ADDD    (R4),AC0           ;*TEST INSTRUCTION
3526  015350  170000                103$:  CFCC                       ;COPY FPP CC
3527  015352  104000                       ERROR                      ;ALL ERRORS TO TRAP TO EMT VECTOR
3528  015354  000265                       .WORD   265                ;UNIQUE ERROR NUMBER
3529  015356  002013                       .WORD   FPPERR             ;ADDRESS OF ERROR MESSAGE
3530                                  ;GO TO ERROR
3531  015360  170203                104$:  STFPS   R3                 ;SAVE FPS
3532  015362  012701  001126                MOV     #RECDST,R1         ;SAVE AC0
3533  015366  174011                       STD     AC0,(R1)           ;
3534  015370  022703  103200                CMP     #103200,R3         ;VERFIY STATUS
3535  015374  001403                       BEQ     5$                 ;BRANCH IF GOOD
3536  015376  104000                       ERROR                      ;ALL ERRORS TO TRAP TO EMT VECTOR
3537  015400  000266                       .WORD   266                ;UNIQUE ERROR NUMBER
3538  015402  002013                       .WORD   FPPERR             ;ADDRESS OF ERROR MESSAGE
3539                                  ;BAD FPS STATUS
3540  015404  012605                5$:    MOV     (SP)+,R5           ;GET ERROR PC
3541  015406  020527  015350                CMP     R5,#103$           ;VERIFY ERROR ADDRESS ON STACK
3542  015412  001403                       BEQ     105$               ;BRANCH IF GOOD
3543  015414  104000                       ERROR                      ;ALL ERRORS TO TRAP TO EMT VECTOR
3544  015416  000267                       .WORD   267                ;UNIQUE ERROR NUMBER
3545  015420  002013                       .WORD   FPPERR             ;ADDRESS OF ERROR MESSAGE
3546                                  ;BAD ERROR RETURN ON STACK
3547  015422  005726                105$:  TST     (SP)+              ;RESTORE STACK
3548  015424  012704  001506                MOV     #TAB24,R4          ;POINT TO EXPECTED DATA
3549  015430  004767  164512                JSR     R7,DATVER
3550  015434  005767  163400                TST     COUNT              ;
3551  015440  001403                       BEQ     6$                 ;BRANCH IF  GOOD
3552  015442  104000                       ERROR                      ;ALL ERRORS TO TRAP TO EMT VECTOR
3553  015444  000270                       .WORD   270                ;UNIQUE ERROR NUMBER
3554  015446  002013                       .WORD   FPPERR             ;ADDRESS OF ERROR MESSAGE
3555                                  ;BAD ACO
3556                                  !ACO!
3557  015450  012704  001526          6$:   MOV     #TAB26,R4          ;POINT TO FSRC DATA
3558  015454  012701  001516                MOV     #TAB25,R1          ;POINT TO ACO DATA
3559  015460  012702  003200                MOV     #3200,R2           ;LOAD FPS VALUE
3560  015464  170102                       LDFPS   R2                 ;
3561  015466  012737  000246  000244        MOV     #246,@#FPVEC       ;SETUP FP VECTOR
3562  015474  172411                       LDD     (R1),AC0           ;LOAD AC0 DATA
3563  015476  172014                       ADDD    (R4),AC0           ;*TEST INSTRUCTION
3564  015500  170203                       STFPS   R3                 ;SAVE STATUS
3565  015502  012701  001126                MOV     #RECDST,R1         ;POINT TO RECEIVED DATA TABLE
3566  015506  174011                       STD     AC0,(R1)           ;SAVE AC0
3567  015510  020327  003200                CMP     R3,#3200           ;VERIFY STATUS
3568  015514  001403                       BEQ     7$                 ;BRANCH IF GOOD
3569  015516  104000                       ERROR                      ;ALL ERRORS TO TRAP TO EMT VECTOR
3570  015520  000271                       .WORD   271                ;UNIQUE ERROR NUMBER
3571  015522  002013                       .WORD   FPPERR             ;ADDRESS OF ERROR MESSAGE
3572                                  ;BAD FPS
3573  015524  012704  001536          7$:   MOV     #TAB27,R4          ;POINT TO EXPECTED DSATA
3574  015530  004767  164412                JSR     R7,DATVER          ;VERIFY DATA
```

```
3575  015534  005767  163300          TST     COUNT
3576  015540  001403                  BEQ     8$                      ;BRANCH IF GOOD
3577  015542  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3578  015544  000272                  .WORD   272                     ;UNIQUE ERROR NUMBER
3579  015546  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3580                                                                  ;
3581                                  ;       !FSRC!  >               ! AC!
3582  015550  012704  001516    8$:   MOV     #TAB25,R4               ;POINT TO FSRC DATA
3583  015554  012701  001526          MOV     #TAB26,R1               ;POINT TO ACO DATA
3584  015560  172411                  LDD     (R1),AC0                ;LOAD ACO DATA
3585  015562  172014                  ADDD    (R4),AC0                ;*TEST INSTRUCTION
3586  015564  170203                  STFPS   R3                      ;SAVE STATUS
3587  015566  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3588  015572  174011                  STD     AC0,(R1)                        ;SAVE ACO
3589  015574  020327  003200          CMP     R3,#3200                        ;VERIFY STATUS
3590  015600  001403                  BEQ     9$                      ;BRANCH IF GOOD
3591  015602  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3592  015604  000273                  .WORD   273                     ;UNIQUE ERROR NUMBER
3593  015606  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3594                                                                  ;BAD FPS
3595  015610  012704  001536    9$:   MOV     #TAB27,R4                       ;POINT TO EXPECTED DSATA
3596  015614  004767  164326          JSR     R7,DATVER                       ;VERIFY DATA
3597  015620  005767  163214          TST     COUNT                   ;
3598  015624  001403                  BEQ     10$                     ;BRANCH IF GOOD
3599  015626  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3600  015630  000274                  .WORD   274                     ;UNIQUE ERROR NUMBER
3601  015632  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3602                                                                  ;BAD ACO
3603                                  ;       !-FSRC! <               !ACO!
3604  015634  012704  001556   10$:   MOV     #TAB29,R4               ;POINT TO FSRC DATA
3605  015640  012701  001546          MOV     #TAB28,R1               ;POINT TO ACO DATA
3606  015644  172411                  LDD     (R1),AC0                ;LOAD ACO DATA
3607  015646  172014                  ADDD    (R4),AC0                ;*TEST INSTRUCTION
3608  015650  170203                  STFPS   R3                      ;SAVE STATUS
3609  015652  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3610  015656  174011                  STD     AC0,(R1)                        ;SAVE ACO
3611  015660  020327  003200          CMP     R3,#3200                        ;VERIFY STATUS
3612  015664  001403                  BEQ     11$                     ;BRANCH IF GOOD
3613  015666  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3614  015670  000275                  .WORD   275                     ;UNIQUE ERROR NUMBER
3615  015672  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3616                                                                  ;BAD FPS
3617  015674  012704  001566   11$:   MOV     #TAB29A,R4              ;POINT TO EXPECTED DATA
3618  015700  004767  164242          JSR     R7,DATVER                       ;VERIFY DATA
3619  015704  005767  163130          TST     COUNT                   ;
3620  015710  001403                  BEQ     12$                     ;BRANCH IF GOOD
3621  015712  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3622  015714  000276                  .WORD   276                     ;UNIQUE ERROR NUMBER
3623  015716  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3624                                                                  ;
3625  015720                  12$:
3626
3627                                  ;
3628                                  ;
3629  015720                  MSB:
3630                                  ;;*****************************************************************
```

```
3631                                    ;*TEST 54       TEST SUB WITH EXP[AC0]-EXP[FSRC]
3632                                    ;;**************************************************************
3633  015720                            TST54:
3634  015720  005267  163060                  INC     $TESTN                  ;INCREMENT TEST NUMBER
3635  015724  012702  003200                  MOV     #3200,R2                ;LOAD FPS DATA
3636  015730  170102                          LDFPS   R2                      ;LOAD FPS
3637  015732  012704  001456                  MOV     #TAB21,R4               ;POINT TO FSRC DATA
3638  015736  012701  001126                  MOV     #RECDST,R1              ;POINT TO AC0 RECEIVED DATA TABLE
3639  015742  172414                          LDD     (R4),AC0                ;LOAD AC0
3640  015744  173014                          SUBD    (R4),AC0                        ;*TEST INSTRUCTION
3641  015746  170203                          STFPS   R3                      ;SAVE STATUS
3642  015750  174011                          STD     AC0,(R1)                ;SAVE AC0 INTO RECDST
3643  015752  022703  003204                  CMP     #3204,R3                ;VERIFY STATUS
3644  015756  001403                          BEQ     1$                      ;BRANCH IF GOOD
3645  015760  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3646  015762  000277                          .WORD   277                     ;UNIQUE ERROR NUMBER
3647  015764  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3648                                                                  ;BAD FPS STATUS
3649  015766  012704  001256          1$:     MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3650  015772  004767  164150                  JSR     R7,DATVER               ;VERIFY AC0
3651  015776  005767  163036                  TST     COUNT                   ;
3652  016002  001403                          BEQ     2$                      ;BRANCH IF GOOD
3653  016004  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3654  016006  000300                          .WORD   300                     ;UNIQUE ERROR NUMBER
3655  016010  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3656                                                                  ;BAD AC0
3657  016012  012704  001406          2$:     MOV     #TAB14,R4               ;POINT TO FSRC AND AC0 DATA
3658  016016  172414                          LDD     (R4),AC0                        ;LOAD AC0 DATA
3659  016020  173014                          SUBD    (R4),AC0                        ;*TEST  INSTRUCTION
3660  016022  170203                          STFPS   R3                      ;SAVE FPS
3661  016024  174011                          STD     AC0,(R1)                        ;SAVE AC0 INTO RECDST
3662  016026  022703  003204                  CMP     #3204,R3                        ;VERIFY FPS
3663  016032  001403                          BEQ     3$                      ;BRANCH IF GOOD
3664  016034  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3665  016036  000301                          .WORD   301                     ;UNIQUE ERROR NUMBER
3666  016040  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3667                                                                  ;BAD AC0
3668  016042  012704  001256          3$:     MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3669  016046  004767  164074                  JSR     R7,DATVER                       ;VERIFY AC0
3670  016052  005767  162762                  TST     COUNT
3671  016056  001403                          BEQ     4$                      ;BRANCH IF GOOD
3672  016060  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3673  016062  000302                          .WORD   302                     ;UNIQUE ERROR NUMBER
3674  016064  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3675                                                                  ;BAD AC0
3676  016066                            4$:
3677
3678                                    ;
3679  016066                            MNRM:
3680                                    ;;**************************************************************
3681                                    ;*TEST 55        TEST NORMALIZE
3682                                    ;;**************************************************************
3683  016066                            TST55:
3684  016066  005267  162712                  INC     $TESTN                  ;INCREMENT TEST NUMBER
3685  016072  012702  003200                  MOV     #3200,R2                ;LOAD FPS
3686  016076  170102                          LDFPS   R2                      ;
```

```
3687  016100  012705  001606          MOV     #TAB31,R5       ;POINT TO FSRC DATA
3688  016104  012701  001576          MOV     #TAB30,R1       ;POINT TO ACO DATA
3689  016110  172411                  LDD     (R1),AC0        ;LOAD AC0
3690  016112  173015                  SUBD    (R5),AC0        ;*TEST INSTRUCTION
3691                                                          ;1 LEFT SHIFT
3692  016114  170203                  STFPS   R3              ;SAVE STATUS
3693  016116  012704  001126          MOV     #RECDST,R4      ;POINT TO RECDATA
3694  016122  174014                  STD     AC0,(R4)                ;SAVE AC0
3695  016124  012701  001636          MOV     #TAB34,R1       ;POINT TO EXPECTED DATA
3696  016130  004767  164012          JSR     R7,DATVER               ;VERIFY DATA
3697  016134  005767  162700          TST     COUNT
3698  016140  001403                  BEQ     1$              ;BRANCH IF GOOD
3699  016142  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3700  016144  000303                  .WORD   303             ;UNIQUE ERROR NUMBER
3701  016146  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3702                                                  ;
3703  016150  012701  001616  1$:     MOV     #TAB32,R1       ;ACO DATA
3704  016154  012705  001626          MOV     #TAB33,R5               ;FSRC DATA
3705  016160  172411                  LDD     (R1),AC0                ;LOAD AC0
3706  016162  173015                  SUBD    (R5),AC0        ;*TST INSTRUCTION
3707                                                          ;56 LEFT SHIFTS
3708  016164  012701  001126          MOV     #RECDST,R1              ;SAVE DATA
3709  016170  174011                  STD     AC0,(R1)                ;
3710  016172  004767  163750          JSR     R7,DATVER
3711  016176  005767  162636          TST     COUNT
3712  016202  001403                  BEQ     2$
3713  016204  104000                  ERROR                   ;
3714  016206  000304                  .WORD   304             ;ALL ERRORS TO TRAP TO EMT VECTOR
3715  016210  002013                  .WORD   FPPERR          ;UNIQUE ERROR NUMBER
3716                                                          ;ADDRESS OF ERROR MESSAGE
3717  016212                  2$:                     ;
3718
3719  016212                  MUVAD:
3720                          ;;*****************************************************************
3721                          ;*TEST 56        TEST ADDD WITH OVERFLOW AND UNDERFLOW
3722                          ;;*****************************************************************
3723  016212                  TST56:
3724  016212  005267  162566          INC     @TESTN                  ;INCREMENT TEST NUMBER
3725  016216  012702  000200          MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3726  016222  170102                  LDFPS   R2                      ;LOAD FPS
3727  016224  012704  001646          MOV     #TAB40,R4                       ;POINT TO FSRC DATA
3728  016230  012701  001646          MOV     #TAB40,R1                       ;POINT TO AC0 DATA
3729  016234  172411                  LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3730  016236  172014                  ADDD    (R4),AC0        ;*TEST INSTRUCTION
3731  016240  170203                  STFPS   R3              ;SAVE FPS
3732  016242  012701  001126          MOV     #RECDST,R1      ;POINT TO RECEIVED DATA TABLE
3733  016246  174011                  STD     AC0,(R1)        ;SAVE AC0  RESULT
3734  016250  022703  000206          CMP     #206,R3         ;VERIFY STATUS
3735  016254  001403                  BEQ     1$              ;BRANCH IF GOOD
3736  016256  104000                  ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3737  016260  000305                  .WORD   305             ;UNIQUE ERROR NUMBER
3738  016262  002013                  .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3739                                                  ;BAD FPS
3740  016264  012704  001256  1$:     MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3741  016270  004767  163652          JSR     R7,DATVER               ;VERIFY DATA
3742  016274  005767  162540          TST     COUNT
```

```
3743  016300  001403                        BEQ     2$                      ;BRANCH IF GOOD
3744  016302  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3745  016304  000306                        .WORD   306                     ;UNIQUE ERROR NUMBER
3746  016306  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3747                                                                        ;BAD ACO
3748                                  ;OVERFLOW TRAPS ENABLED
3749  016310  012702  001200          2$:   MOV     #1200,R2                        ;SETUP FLOATING POINT STATUS
3750  016314  170102                        LDFPS   R2                      ;LOAD FPS
3751  016316  012704  001646                MOV     #TAB40,R4                       ;POINT TO FSRC DATA
3752  016322  012701  001646                MOV     #TAB40,R1                       ;POINT TO ACO DATA
3753  016326  172411                        LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3754  016330  012737  016350  000244        MOV     #3$,@#FPVEC             ;CHANGE TRAP VECTOR
3755  016336  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3756  016340  170000                23$:   CFCC
3757  016342  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3758  016344  000307                        .WORD   307                     ;UNIQUE ERROR NUMBER
3759  016346  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3760                                                                        ;FAILED TO TRAP ON OVERFLOW
3761  016350  170203                3$:    STFPS   R3                      ;SAVE FPS
3762  016352  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3763  016356  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3764  016360  022703  101206                CMP     #101206,R3                      ;VERIFY STATUS
3765  016364  001403                        BEQ     4$                      ;BRANCH IF GOOD
3766  016366  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3767  016370  000310                        .WORD   310                     ;UNIQUE ERROR NUMBER
3768  016372  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3769                                                                        ;BAD FPS
3770  016374  012600                4$:    MOV     (SP)+,R0                ;CHECK STORED PC
3771  016376  022700  016340                CMP     #23$,R0                 ;
3772  016402  001403                        BEQ     5$                      ;BRANCH IF RETURN ADDRESS IS GOOD
3773  016404  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3774  016406  000311                        .WORD   311                     ;UNIQUE ERROR NUMBER
3775  016410  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3776                                                                        ;BAD RETURN ADDRESS
3777  016412  012600                5$:    MOV     (SP)+,R0                ;CLEAN UP STACK
3778  016414  012704  001256                MOV     #TAB6,R4                        ;POINT TO EXPECTED DATA
3779  016420  004767  163522                JSR     R7,DATVER                       ;VERIFY DATA
3780  016424  005767  162410                TST     COUNT
3781  01643C  001403                        BEQ     7$                      ;BRANCH IF GOOD
3782  016432  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3783  016434  000312                        .WORD   312                     ;UNIQUE ERROR NUMBER
3784  016436  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3785                                                                        ;BAD ACO
3786                                  ;UNDERFLOW TRAPS DISABLED
3787  016440  012702  000200          7$:   MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3788  016444  170102                        LDFPS   R2                      ;LOAD FPS
3789  016446  012737  002106  000244        MOV     #WLDTRP,@#FPVEC                 ;REPLACE WILD TRAP VECTOR
3790  016454  012704  001276                MOV     #TAB7,R4                        ;POINT TO FSRC DATA
3791  016460  012701  001656                MOV     #TAB41,R1               ;POINT TO ACO DATA
3792  016464  172411                        LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3793  016466  172014                        ADDD    (R4),AC0                ;*TEST INSTRUCTION
3794  016470  170203                        STFPS   R3                      ;SAVE FPS
3795  016472  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3796  016476  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
3797  016500  022703  000204                CMP     #204,R3                 ;VERIFY STATUS
3798  016504  001403                        BEQ     8$                      ;BRANCH IF GOOD
```

```
3799  016506  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3800  016510  000313                        .WORD   313             ;UNIQUE ERROR NUMBER
3801  016512  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3802                                                                ;BAD FPS
3803  016514  012704  001256          8$:   MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
3804  016520  004767  163422                JSR     R7,DATVER               ;VERIFY DATA
3805  016524  005767  162310                TST     COUNT
3806  016530  001403                        BEQ     9$              ;BRANCH IF GOOD
3807  016532  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3808  016534  000314                        .WORD   314             ;UNIQUE ERROR NUMBER
3809  016536  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3810                                                                ;BAD ACO
3811                                  ;UNDERFLOW TRAPS ENABLED
3812  016540  012702  002200          9$:   MOV     #2200,R2                ;SETUP FLOATING POINT STATUS
3813  016544  170102                        LDFPS   R2              ;LOAD FPS
3814  016546  012737  016600  000244        MOV     #11$,@#FPVEC    ;REPOSITION TRAP VECTOR
3815  016554  012704  001276                MOV     #TAB7,R4                ;POINT TO FSRC DATA
3816  016560  012701  001656                MOV     #TAB41,R1               ;POINT TO ACO DATA
3817  016564  172411                        LDD     (R1),AC0                ;LOAD ACO WITH TEST DATA
3818  016566  172014                        ADDD    (R4),AC0        ;*TEST INSTRUCTION
3819  016570  170000                10$:    CFCC                    ;COPY FPP CC
3820  016572  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3821  016574  000315                        .WORD   315             ;UNIQUE ERROR NUMBER
3822  016576  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3823                                                                ;FAILED TO TRAP ON UNDERFLOW
3824  016600  170203                11$:    STFPS   R3              ;SAVE FPS
3825  016602  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3826  016606  174011                        STD     AC0,(R1)        ;SAVE ACO  RESULT
3827  016610  022703  102210                CMP     #102210,R3              ;VERIFY STATUS
3828  016614  001403                        BEQ     12$             ;BRANCH IF GOOD
3829  016616  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3830  016620  000316                        .WORD   316             ;UNIQUE ERROR NUMBER
3831  016622  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3832                                                                ;BAD FPS
3833  016624  012605                12$:    MOV     (SP)+,R5                ;GET ERROR PC
3834  016626  020527  016570                CMP     R5,#10$         ;VERIFY ERROR ADDRESS ON STACK
3835  016632  001403                        BEQ     13$             ;BRANCH IF GOOD
3836  016634  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3837  016636  000317                        .WORD   317             ;UNIQUE ERROR NUMBER
3838  016640  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3839                                                                ;BAD ERROR RETURN ON STACK
3840  016642  005726                13$:    TST     (SP)+                   ;RESTORE STACK
3841  016644  012704  001246                MOV     #TAB5A,R4               ;POINT TO EXPECTED DATA
3842  016650  004767  163272                JSR     R7,DATVER               ;VERIFY DATA
3843  016654  005767  162160                TST     COUNT
3844  016660  001403                        BEQ     14$             ;BRANCH IF GOOD
3845  016662  104000                        ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
3846  016664  000320                        .WORD   320             ;UNIQUE ERROR NUMBER
3847  016666  002013                        .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
3848                                                                ;BAD ACO
3849                                  ;UNDERFLOW WITH TRAPS DISBLED - NON-ZERO RESULT
3850  016670  012702  000200          14$:  MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3851  016674  170102                        LDFPS   R2              ;LOAD FPS
3852  016676  012737  002106  000244        MOV     #WLDTRP,@#FPVEC         ;RESTORE TRAP VECTOR
3853  016704  012704  001656                MOV     #TAB41,R4               ;POINT TO FSRC DATA
3854  016710  012701  001666                MOV     #TAB42,R1               ;POINT TO ACO DATA
```

```
3855  016714  172411                      LDD     (R1),AC0                ;LOAD AC0 WITH TEST DATA
3856  016716  172014                      ADDD    (R4),AC0                ;*TEST INSTRUCTION
3857  016720  170203                      STFPS   R3                      ;SAVE FPS
3858  016722  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3859  016726  174011                      STD     AC0,(R1)                ;SAVE AC0  RESULT
3860  016730  022703  000204              CMP     #204,R3                 ;VERIFY STATUS
3861  016734  001403                      BEQ     15$                     ;BRANCH IF GOOD
3862  016736  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3863  016740  000321                      .WORD   321                     ;UNIQUE ERROR NUMBER
3864  016742  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3865                                                                  ;BAD FPS
3866  016744  012704  001256      15$:    MOV     #TAB6,R4                        ;POINT TO EXPECTED DATA
3867  016750  004767  163172              JSR     R7,DATVER                       ;VERIFY DATA
3868  016754  005767  162060              TST     COUNT
3869  016760  001403                      BEQ     16$                     ;BRANCH IF GOOD
3870  016762  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3871  016764  000322                      .WORD   322                     ;UNIQUE ERROR NUMBER
3872  016766  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3873                                                                  ;BAD AC0
3874                              ;UNERFLOW WITH TRAPS ENABLED - NON-ZERO  RESULT
3875  016770  012702  102200      16$:    MOV     #102200,R2                      ;SETUP FLOATING POINT STATUS
3876  016774  170102                      LDFPS   R2                      ;LOAD FPS
3877  016776  012737  017030  000244      MOV     #18$,@#FPVEC            ;RESTORE  TRAP VECTOR
3878  017004  012704  001656              MOV     #TAB41,R4                       ;POINT TO FSRC DATA
3879  017010  012701  001666              MOV     #TAB42,R1                       ;POINT TO AC0 DATA
3880  017014  172411                      LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3881  017016  172014                      ADDD    (R4),AC0                ;*TEST INSTRUCTION
3882  017020  170000      17$:    CFCC
3883  017022  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3884  017024  000323                      .WORD   323                     ;UNIQUE ERROR NUMBER
3885  017026  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3886                                                                  ;NO TRAP ON UNDERFLOW
3887  017030  170203      18$:    STFPS   R3                      ;SAVE FPS
3888  017032  012701  001126              MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3889  017036  174011                      STD     AC0,(R1)                ;SAVE AC0  RESULT
3890  017040  012600                      MOV     (SP)+,R0                ;SAVE STACK CONTENTS
3891  017042  005726                      TST     (SP)+                   ;CLEAN UP STACK
3892  017044  022700  017020              CMP     #17$,R0                 ;VERIFY RETURN ADDRESS
3893  017050  001403                      BEQ     19$                     ;BRANCH IF GOOD
3894  017052  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3895  017054  000324                      .WORD   324                     ;UNIQUE ERROR NUMBER
3896  017056  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3897                                                                  ;BAD RETURN ADDRESS
3898  017060  022703  102204      19$:    CMP     #102204,R3                      ;VERIFY STATUS
3899  017064  001403                      BEQ     20$                     ;BRANCH IF GOOD
3900  017066  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3901  017070  000325                      .WORD   325                     ;UNIQUE ERROR NUMBER
3902  017072  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3903                                                                  ;BAD FPS
3904  017074  012704  001676      20$:    MOV     #TAB43,R4                       ;POINT TO EXPECTED DATA
3905  017100  004767  163042              JSR     R7,DATVER                       ;VERIFY DATA
3906  017104  005767  161730              TST     COUNT
3907  017110  001403                      BEQ     21$                     ;BRANCH IF GOOD
3908  017112  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3909  017114  000326                      .WORD   326                     ;UNIQUE ERROR NUMBER
3910  017116  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
```

```
                                                                        ;BAD ACO
017120                          21$:


017120                          MLDC:
                                ;;*****************************************************************
                                ;*TEST 57        TEST LDCFD, LDCDF
                                ;;*****************************************************************
017120                          TST57:
017120  005267  161660                  INC     $TESTN                  ;INCREMENT TEST NUMBER
                                ;TRUNCATE
017124  012702  000300                  MOV     #300,R2                 ;SETUP FLOATING POINT STATUS
017130  170102                          LDFPS   R2                      ;LOAD FPS
017132  012704  001706                  MOV     #TAB45,R4                       ;POINT TO FSRC DATA
017136  012701  001256                  MOV     #TAB6,R1                        ;POINT TO ACO DATA
017142  172411                          LDD     (R1),ACO                        ;LOAD ACO WITH TEST DATA
017144  177424                          LDCFD   (R4)+,ACO               ;*TEST INSTRUCTION
017146  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
017152  174011                          STD     ACO,(R1)                ;SAVE ACO  RESULT
017154  022704  001712                  CMP     #TAB45+4,R4             ;VERIFY AUTO-INC
017160  001403                          BEQ     1$                      ;BRANCH IF GOOD AUTO-INC
017162  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017164  000327                          .WORD   327                     ;UNIQUE ERROR NUMBER
017166  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD AUTO-INC
017170  012704  001716          1$:     MOV     #TAB46,R4                       ;POINT TO EXPECTED DATA
017174  004767  162746                  JSR     R7,DATVER                       ;VERIFY DATA
017200  005767  161634                  TST     COUNT
017204  001403                          BEQ     2$                      ;BRANCH IF GOOD
017206  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017210  000330                          .WORD   330                     ;UNIQUE ERROR NUMBER
017212  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD ACO
                                ;AUTO-INC DOUBLE MODE
017214  005002                  2$:     CLR     R2                      ;SETUP FLOATING POINT STATUS
017216  170102                          LDFPS   R2                      ;LOAD FPS
017220  012704  001706                  MOV     #TAB45,R4                       ;POINT TO FSRC DATA
017224  012701  001426                  MOV     #TAB16,R1                       ;POINT TO ACO DATA
017230  172411                          LDD     (R1),ACO                        ;LOAD ACO WITH TEST DATA
017232  177424                          LDCDF   (R4)+,ACO               ;*TEST INSTRUCTION
017234  020427  001716                  CMP     R4,#TAB45+10            ;VERIFY AUTO-INC
017240  001403                          BEQ     3$                      ;BRANCH IF GOOD
017242  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017244  000331                          .WORD   331                     ;UNIQUE ERROR NUMBER
017246  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD AUTO-INC ON DOUBLE
017250  170203                  3$:     STFPS   R3                      ;SAVE FPS
017252  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
017256  174011                          STD     ACO,(R1)                ;SAVE ACO  RESULT
017260  022703  000000                  CMP     #0,R3                   ;VERIFY STATUS
017264  001403                          BEQ     4$                      ;BRANCH IF GOOD
017266  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
017270  000332                          .WORD   332                     ;UNIQUE ERROR NUMBER
017272  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD FPS
017274  012704  001756          4$:     MOV     #TAB49,R4                       ;POINT TO EXPECTED DATA
```

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3967  017300  004767  162642          JSR     R7,DATVER               ;VERIFY DATA
3968  017304  005767  161530          TST     COUNT
3969  017310  001403                  BEQ     5$                      ;BRANCH IF GOOD
3970  017312  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3971  017314  000333                  .WORD   333                     ;UNIQUE ERROR NUMBER
3972  017316  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3973                                                                ;BAD ACO
3974                          ;LDCFD GR7
3975  017320  012702  000200  5$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3976  017324  170102                  LDFPS   R2                      ;LOAD FPS
3977  017326  005003                  CLR     R3
3978  017330  177427  043243          LDCFD   #5203,AC0               ;^TEST INSTRUCTION
3979  017334  005203                  INC     R3
3980  017336  005203                  INC     R3
3981  017340  005203                  INC     R3                      ;IF LDCFD WORKED, R3 SHOULD=3
3982  017342  022703  000003          CMP     #3,R3                   ;VERIFY CORRECT PROGRAM FLOW
3983  017346  001403                  BEQ     6$                      ;BRANCH IF GOOD
3984  017350  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
3985  017352  000334                  .WORD   334                     ;UNIQUE ERROR NUMBER
3986  017354  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
3987                                                                ;BAD PROGRAM FLOW
3988                          ;NEGATIVE OPERANDS
3989  017356  012702  000200  6$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
3990  017362  170102                  LDFPS   R2                      ;LOAD FPS
3991  017364  012704  001726          MOV     #TAB47,R4                       ;POINT TO FSRC DATA
3992  017370  012701  001706          MOV     #TAB45,R1                       ;POINT TO AC0 DATA
3993  017374  172411                  LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
3994  017376  177414                  LDCFD   (R4),AC0                ;^TEST INSTRUCTION
3995  017400  170203                  STFPS   R3                      ;SAVE FPS
3996  017402  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
3997  017406  174011                  STD     AC0,(R1)                ;SAVE AC0  RESULT
3998  017410  022703  000210          CMP     #210,R3                 ;VERIFY STATUS
3999  017414  001403                  BEQ     7$                      ;BRANCH IF GOOD
4000  017416  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4001  017420  000335                  .WORD   335                     ;UNIQUE ERROR NUMBER
4002  017422  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4003                                                                ;BAD FPS
4004  017424  012704  001746  7$:     MOV     #TAB48,R4                       ;POINT TO EXPECTED DATA
4005  017430  004767  162512          JSR     R7,DATVER               ;VERIFY DATA
4006  017434  005767  161400          TST     COUNT
4007  017440  001403                  BEQ     8$                      ;BRANCH IF GOOD
4008  017442  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4009  017444  000336                  .WORD   336                     ;UNIQUE ERROR NUMBER
4010  017446  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4011                                                                ;BAD ACO
4012                          ;LOAD A ZERO
4013  017450  012702  000200  8$:     MOV     #200,R2                 ;SETUP FLOATING POINT STATUS
4014  017454  170102                  LDFPS   R2                      ;LOAD FPS
4015  017456  012704  001256          MOV     #TAB6,R4                        ;POINT TO FSRC DATA
4016  017462  012701  001746          MOV     #TAB48,R1                       ;POINT TO AC0 DATA
4017  017466  172411                  LDD     (R1),AC0                        ;LOAD AC0 WITH TEST DATA
4018  017470  177414                  LDCFD   (R4),AC0                ;^TEST INSTRUCTION
4019  017472  170203                  STFPS   R3                      ;SAVE FPS
4020  017474  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4021  017500  174011                  STD     AC0,(R1)                ;SAVE AC0  RESULT
4022  017502  022703  000204          CMP     #204,R3                 ;VERIFY STATUS
```

```
4023  017506  001403                    BEQ     9$                      ;BRANCH IF GOOD
4024  017510  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4025  017512  000337                    .WORD   337                     ;UNIQUE ERROR NUMBER
4026  017514  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4027                                                                    ;BAD FPS
4028  017516  012704  001256      9$:   MOV     #TAB6,R4                ;POINT TO EXPECTED DATA
4029  017522  004767  162420            JSR     R7,DATVER               ;VERIFY DATA
4030  017526  005767  161306            TST     COUNT
4031  017532  001403                    BEQ     10$                     ;BRANCH IF GOOD
4032  017534  104000                    ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4033  017536  000340                    .WORD   340                     ;UNIQUE ERROR NUMBER
4034  017540  002013                    .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4035                                                                    ;BAD ACO
4036  017542                      10$:
4037
4038                                    ;
4039  017542                            MCMPD:
4040                                    ;;*****************************************************************
4041                                    ;*TEST 60        TEST CMPD
4042                                    ;;*****************************************************************
4043  017542                            TST60:
4044  017542  005267  161236                   INC     $TESTN                  ;INCREMENT TEST NUMBER
4045                                    ;  CMPD WITH FRSC=ACO=0
4046  017546  005037  001042                   CLR     @#FLAG                  ;SIGNAL THAT ACO REMAINS CONSTANT
4047  017552  004767  000152                   JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
4048  017556  000000  000000  000000          .WORD   0,0,0,0                 ;ACO AT START
4049  017564  000000
4050  017566  000000  000000  000000          .WORD   0,0,0,0                 ;FSRC AT START
4051  017574  000000
4052  017576  000200                          .WORD   200                     ;FPS AT START (D)
4053  017600  000204                          .WORD   204                     ;FPS AT END
4054                                    ;  CMPD WITH EXP[FSRC]=0, EXP[ACO]=0
4055  017602  012737  000001  001042          MOV     #1,@#FLAG               ;SIGNAL THAT ACO WILL = 0
4056  017610  004767  000114                  JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
4057  017614  000000  000000  000000          .WORD   0,0,0,125252            ;ACO AT START
4058  017622  125252
4059  017624  000100  000022  000123          .WORD   100,22,123,123          ;FSRC AT START
4060  017632  000123
4061  017634  000200                          .WORD   200                     ;FPS AT START (D)
4062  017636  000204                          .WORD   204                     ;FPS AT END
4063                                    ;  CMPD FSRC>EXP[ACO]=0
4064  017640  005037  001042                   CLR     @#FLAG                  ;ACO REMAINS UNCHANGED
4065  017644  004767  000060                   JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
4066  017650  000400  012346  012346          .WORD   400,12346,12346,23      ;ACO AT START
4067  017656  000023
4068  017660  000200  000000  000000          .WORD   200,0,0,0               ;FSRC AT START
4069  017666  000000
4070  017670  000200                          .WORD   200                     ;FPS AT START (D)
4071  017672  000210                          .WORD   210                     ;FPS AT END
4072                                    ;  CMPD FSRC=ACO>0
4073  017674  004767  000030                   JSR     R7,CMPRTN               ;ROUTINE TO TEST DATA
4074  017700  077777  177777  177777          .WORD   77777,-1,-1,-1          ;ACO AT START
4075  017706  177777
4076  017710  077777  177777  177777          .WORD   77777,-1,-1,-1          ;FSRC AT START
4077  017716  177777
4078  017720  000200                          .WORD   200                     ;FPS AT START (D)
```

```
4079  017722  000204                  .WORD   204                     ;FPS AT END
4080  017724  000167  000126          JMP     HOP44                   ;HOP OVER SUBROUTINE
4081
4082                                  ;*X*X*X
```

```
                                        ;*TEST 61       TEST DIVF
                                        ;;*****************************************************************
                                        TST61:
020056                                          INC     $TESTN                  ;INCREMENT TEST NUMBER
020056  005267  160722                  ;1/EXP[AC]-FSRC-0
020062  012737  000002  001042                  MOV     #2,@#FLAG               ;NO INTERRUPT, BUT FEC
020070  004767  000706                          JSR     R7,DVFSUB               ;DO TEST
020074  000100  000027                          .WORD   100,27          ;ACO
020100  000000  000000                          .WORD   0,0             ;FSRC
020104  000100  000027                          .WORD   100,27          ;RESULT
020110  040000                              .WORD   40000           ; TEST FPS
020112  140000                              .WORD   140000          ;RESULT FPS
020114  000004                              .WORD   4               ;FEC
                                        ;2/AC-EXP[FSRC]-0
                                        ;TRAPS ENABLED
020116  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020124  004767  000652                          JSR     R7,DVFSUB               ;DO TEST
020130  000000  000000                          .WORD   0,0             ;ACO
020134  000100  000000                          .WORD   100,0           ;FSRC
020140  000000  000000                          .WORD   0,0             ;RESULT
020144  000000                              .WORD   0               ; TEST FPS
020146  100000                              .WORD   100000          ;RESULT FPS
020150  000004                              .WORD   4               ;FEC
                                        ;3/FSRC>ACO-0
020152  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020156  004767  000620                          JSR     R7,DVFSUB               ;DO TEST
020162  000177  000234                          .WORD   177,234         ;ACO
020166  004100  000000                          .WORD   4100,0          ;FSRC
020172  000000  000000                          .WORD   0,0             ;RESULT
020176  007400                              .WORD   7400            ; TEST FPS
020200  007404                              .WORD   7404            ;RESULT FPS
                                        ;4/ACO>EXP[FSRC]-0
020202  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
020210  004767  000566                          JSR     R7,DVFSUB               ;DO TEST
020214  040200  104210                          .WORD   40200,104210    ;ACO
020220  000125  025252                          .WORD   125,25252       ;FSRC
020224  040200  104210                          .WORD   40200,104210    ;RESULT
020230  007557                              .WORD   7557            ; TEST FPS
020232  107557                              .WORD   107557          ;RESULT FPS
020234  000004                              .WORD   4               ;FEC
                                        ;5/EXP[AC]-EXP[FSRC]
020236  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020242  004767  000534                          JSR     R7,DVFSUB               ;DO TEST
020246  077760  177777                          .WORD   77760,-1                ;ACO
020252  077760  000000                          .WORD   77760,0         ;FSRC
020256  040200  104210                          .WORD   4020C,104210    ;RESULT
020262  007414                              .WORD   7414            ; TEST FPS
020264  007400                              .WORD   7400            ;RESULT FPS
                                        ;6/AC-FSRC
020266  005037  001042                          CLR     @#FLAG          ;NO INTERRUPT
020272  004767  000504                          JSR     R7,DVFSUB               ;DO TEST
020276  052525  052525                          .WORD   52525,52525             ;ACO
020302  052525  052525                          .WORD   52525,52525             ;FSRC
020306  040200  000000                          .WORD   40200,0         ;RESULT
020312  007400                              .WORD   7400            ; TEST FPS
020314  007400                              .WORD   7400            ;RESULT FPS
```

```
4191
4192  020316  005037  001042          ;7/FSRC>0<ACO, ROUND
4193  020322  004767  000454                  CLR     @#FLAG          ;NO INTERRUPT
4194  020326  077777  125252                  JSR     R7,DVFSUB               ;DO TEST
4195  020332  040300  000000                  .WORD   77777,125252    ;ACO
4196  020336  077652  070707                  .WORD   40300,0         ;FSRC
4197  020342  007400                          .WORD   77652,070707            ;RESULT
4198  020344  007400                          .WORD   7400            ; TEST FPS
4199                                          .WORD   7400            ;RESULT FPS
4200  020346  005037  001042          ;8/AC>0<FSRC
4201  020352  004767  000424                  CLR     @#FLAG          ;NO INTERRUPT
4202  020356  055377  177777                  JSR     R7,DVFSUB               ;DO TEST
4203  020362  055300  000000                  .WORD   55377,-1        ;ACO
4204  020366  040252  125252                  .WORD   55300,0         ;FSRC
4205  020372  000000                          .WORD   40252,125252    ;RESULT
4206  020374  000000                          .WORD   0               ; TEST FPS
4207                                          .WORD   0               ;RESULT FPS
4208  020376  005037  001042          ;9/FSRC>AC>0
4209  020402  004767  000374                  CLR     @#FLAG          ;NO INTERRUPT
4210  020406  064600  000001                  JSR     R7,DVFSUB               ;DO TEST
4211  020412  066600  000000                  .WORD   64600,1         ;ACO
4212  020416  036200  000001                  .WORD   66600,0         ;FSRC
4213  020422  000000                          .WORD   36200,1         ;RESULT
4214  020424  000000                          .WORD   0               ; TEST FPS
4215                                          .WORD   0               ;RESULT FPS
4216  020426  005037  001042          ;10/AC>FSRC>0
4217  020432  004767  000344                  CLR     @#FLAG          ;NO INTERRUPT
4218  020436  012345  156024                  JSR     R7,DVFSUB               ;DO TEST
4219  020442  005600  000000                  .WORD   12345,156024    ;ACO
4220  020446  044745  156024                  .WORD   05600,0         ;FSRC
4221  020452  000017                          .WORD   44745,156024            ;RESULT
4222  020454  000000                          .WORD   17              ; TEST FPS
4223                                          .WORD   0               ;RESULT FPS
4224  020456  005037  001042          ;11/FSRC<0
4225  020462  004767  000314                  CLR     @#FLAG          ;NO INTERRUPT
4226  020466  040422  101010                  JSR     R7,DVFSUB               ;DO TEST
4227  020472  140511  101010                  .WORD   40422,101010    ;ACO
4228  020476  140072  020167                  .WORD   140511,101010   ;FSRC
4229  020502  000057                          .WORD   140072,20167            ;RESULT
4230  020504  000050                          .WORD   57              ; TEST FPS
4231                                          .WORD   50              ;RESULT FPS
4232  020506  005037  001042          ;12/AC<0
4233  020512  004767  000264                  CLR     @#FLAG          ;NO INTERRUPT
4234  020516  160077  000101                  JSR     R7,DVFSUB               ;DO TEST
4235  020522  040417  177777                  .WORD   160077,101      ;ACO
4236  020526  157651  143527                  .WORD   40417,-1        ;FSRC
4237  020532  000007                          .WORD   157651,143527           ;RESULT
4238  020534  000010                          .WORD   7               ; TEST FPS
4239                                          .WORD   10              ;RESULT FPS
4240  020536  005037  001042          ;13/TRUNCATE TEST
4241  020542  004767  000234                  CLR     @#FLAG          ;NO INTERRUPT
4242  020546  060100  000177                  JSR     R7,DVFSUB               ;DO TEST
4243  020552  040300  000000                  .WORD   60100,177       ;ACO
4244  020556  060000  000124                  .WORD   40300,0         ;FSRC
4245  020562  000040                          .WORD   60000,124               ;RESULT
4246  020564  000040                          .WORD   40              ; TEST FPS
                                              .WORD   40              ;RESULT FPS
```

```
4247                                    ;14/ROUND TEST
4248
4249  020566  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
4250  020572  004767  000204                    JSR     R7,DVFSUB               ;DO TEST
4251  020576  060100  000177                    .WORD   60100,177       ;ACO
4252  020602  040300  000000                    .WORD   40300,0 ;FSRC
4253  020606  060000  000125                    .WORD   60000,125               ;RESULT
4254  020612  000000                            .WORD   0               ; TEST FPS
4255  020614  000000                            .WORD   0               ;RESULT FPS
4256                                    ;15/OVERFLOW, INTERRUPTS ENABLED
4257  020616  012737  000001  001042            MOV     #1,@#FLAG               ;INTERRUPT
4258  020624  004767  000152                    JSR     R7,DVFSUB               ;DO TEST
4259  020630  177700  000000                    .WORD   177700,0                ;ACO
4260  020634  000200  000000                    .WORD   200,0           ;FSRC
4261  020640  137700  000000                    .WORD   137700,0                ;RESULT
4262  020644  001100                            .WORD   1100            ; TEST FPS
4263  020646  101112                            .WORD   101112          ;RESULT FPS
4264  020650  000010                            .WORD   10              ;FEC
4265                                    ;16/OVERFLOW, TRAPS DISABLED
4266  020652  012737  000002  001042            MOV     #2,@#FLAG               ;NO INTERRUPT
4267  020660  004767  000116                    JSR     R7,DVFSUB               ;DO TEST
4268  020664  000200  000000                    .WORD   200,0           ;ACO
4269  020670  177700  000000                    .WORD   177700,0                ;FSRC
4270  020674  000000  000000                    .WORD   0,0             ;RESULT
4271  020700  041100                            .WORD   41100           ; TEST FPS
4272  020702  041104                            .WORD   41104           ;RESULT FPS
4273  020704  000010                            .WORD   10              ;FEC OVERFLOW
4274                                    ;17/UNDERFLOW, TRAPS ENABLED, UV RESULT
4275  020706  012737  000001  001042            MOV     #1,@#FLAG               ;INTERRUPT
4276  020714  004767  000062                    JSR     R7,DVFSUB               ;DO TEST
4277  020720  100200  000000                    .WORD   100200,0                ;ACO
4278  020724  040377  177777                    .WORD   40377,-1                ;FSRC
4279  020730  100000  000001                    .WORD   100000,1                ;RESULT
4280  020734  002000                            .WORD   2000            ; TEST FPS
4281  020736  102014                            .WORD   102014          ;RESULT FPS
4282  020740  000012                            .WORD   12              ;FEC
4283                                    ;18/UNDERFLOW,TRAPS ENABLED, ROUND
4284  020742  012737  000001  001042            MOV     #1,@#FLAG               ;INTERRUPT
4285  020750  004767  000026                    JSR     R7,DVFSUB               ;DO TEST
4286  020754  030325  025252                    .WORD   30325,25252             ;ACO
4287  020760  076777  023456                    .WORD   76777,23456             ;FSRC
4288  020764  071525  157716                    .WORD   71525,157716            ;RESULT
4289  020770  002537                            .WORD   2537            ; TEST FPS
4290  020772  102500                            .WORD   102500          ;RESULT FPS
4291  020774  000012                            .WORD   12              ;FEC
4292                                    ;
4293
4294  020776  000167  000242                    JMP     HOP10           ;GO TO NEXT TEST
4295                                    ;*X*X*X
```

```
                                ;
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                                ;
021002  012605                  DVFSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
021004  012737  021064  000244          MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
021012  012702  000200                  MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
021016  170102                          LDFPS   R2                      ;LOAD FPS
021020  010504                          MOV     R5,R4                   ;POINT TO FSRC DATA
021022  062704  000004                  ADD     #4,R4
021026  172415                          LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
021030  016502  000014                  MOV     14(R5),R2               ;GET TEST FPS
021034  170102                          LDFPS   R2                      ;LOAD TEST FPS
                                ;
021036  174414                          DIVF    (R4),AC0                ;*TEST INSTRUCTION
021040  170001                  1$:     SETF                            ;WAIT FOR POSSIBLE FPA TRAP.
                                ;
                                ;INSTRUCTION DIDNT TRAP
021042  032737  000001  001042          BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
021050  001426                          BEQ     2$                      ;BRANCH IF GOOD
021052  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
021054  000343                          .WORD   343                     ;UNIQUE ERROR NUMBER
021056  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION SHOULD HAVE TRAPPED
021060  000167  000042                  JMP     2$                      ;REJOIN CODE
                                ;
                                ;INSTRUCTION TRAPPED
021064  032737  000001  001042  50$:     BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
021072  001005                          BNE     51$                     ;BRANCH IF EXPECTING A TRAP
021074  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
021076  000344                          .WORD   344                     ;UNIQUE ERROR NUMBER
021100  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION WASNT SUPPOSE TO TRAP
021102  000167  000020                  JMP     2$                      ;REJOIN CODE
021106  012604                  51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
021110  005726                          TST     (SP)+                   ;CLEAN UP STACK
021112  022704  021040                  CMP     #1$,R4                  ;
021116  001403                          BEQ     2$                      ;BRANCH IF GOOD COMPARE
021120  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
021122  000345                          .WORD   345                     ;UNIQUE ERROR NUMBER
021124  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;PC WAS INCORRECT
                                ;
                                ;COMMON CODE FOR TRAP AND NO TRAP
021126  170203                  2$:     STFPS   R3                      ;SAVE FPS
021130  012702  000200                  MOV     #200,R2                 ;SET FPP TO DOUBLE
021134  170102                          LDFPS   R2
021136  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
021142  174011                          STD     AC0,(R1)                ;SAVE AC0  RESULT
021144  026503  000016                  CMP     16(R5),R3               ;VERIFY STATUS
021150  001403                          BEQ     3$                      ;BRANCH IF GOOD
021152  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
021154  000346                          .WORD   346                     ;UNIQUE ERROR NUMBER
021156  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
021160  010504                  3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
```

```
4359  021162  062704  000010            ADD     #10,R4
4360  021166  004767  160736      4$:   JSR     R7,DATVFR                ;VERIFY DATA
4361  021172  005767  157642            TST     COUNT
4362  021176  001403                    BEQ     5$                       ;BRANCH IF GOOD
4363  021200  104000                    ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
4364  021202  000347                    .WORD   347                      ;UNIQUE ERROR NUMBER
4365  021204  002013                    .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
4366                                                        ;BAD ACO
4367  021206  005737  001042      5$:   TST     @#FLAG                   ;SEE IF NEED TO CHECK FEC
4368  021212  001002                    BNE     6$                       ;BRANCH IF NEED TO CHECK
4369  021214  000165  000020            JMP     20(R5)                   ;RETURN FROM TEST
4370  021220  170301                6$: STST    R1                       ;SAVE FEC
4371  021222  016504  000020            MOV     20(R5),R4                ;GET FEC
4372  021226  020401                    CMP     R4,R1                    ;VERIFY FEC
4373  021230  001403                    BEQ     7$                       ;BRANCH IF GOOD
4374  021232  104000                    ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
4375  021234  000350                    .WORD   350                      ;UNIQUE ERROR NUMBER
4376  021236  002013                    .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
4377                                                                      ;BAD FEC
4378  021240  000165  000022      7$:   JMP     22(R5)                   ;RETURN FROM TEST
4379                                    ;
4380  021244                            MOP10:
4381  021244                            MDIVD:
4382                                    ;;**********************************************************************
4383                                    ;*TEST 62        TEST DIVD -
4384                                    ;;**********************************************************************
4385  021244                            TST62:
4386  021244  005267  157534            INC     $TESTN                   ;INCREMENT TEST NUMBER
4387                                    ;1/AC=FSRC=0 TRAPS DISABLED
4388  021250  012737  000002  001042    MOV     #2,@#FLAG                ;NO INTERRUPT
4389  021256  004767  000516            JSR     R7,DVDSUB                ;DO TEST
4390  021262  000000  000000  000000    .WORD   0,0,0,1          ;ACO
4391  021270  000001
4392  021272  000100  000000  000000    .WORD   100,0,0,0        ;FSRC
4393  021300  000000
4394  021302  000000  000000  000000    .WORD   0,0,0,1          ;RESULT
4395  021310  000001
4396  021312  040000                    .WORD   40000            ; TEST FPS
4397  021314  140000                    .WORD   140000           ;RESULT FPS
4398  021316  000004                    .WORD   4                ;FEC
4399                                ;2/FSRC=0, TRAPS ENABLED
4400  021320  012737  000001  001042    MOV     #1,@#FLAG                ;INTERRUPT
4401  021326  004767  000446            JSR     R7,DVDSUB                ;DO TEST
4402  021332  000402  000000  000000    .WORD   402,0,0,0        ;ACO
4403  021340  000000
4404  021342  000000  000000  000000    .WORD   0,0,0,0          ;FSRC
4405  021350  000000
4406  021352  000402  000000  000000    .WORD   402,0,0,0                ;RESULT
4407  021360  000000
4408  021362  000200                    .WORD   200              ; TEST FPS
4409  021364  100200                    .WORD   100200           ;RESULT FPS
4410  021366  000004                    .WORD   4                        ;FEC
4411                                ;3/ROUND
4412  021370  005037  001042            CLR     @#FLAG           ;NO INTERRUPT
4413  021374  004767  000400            JSR     R7,DVDSUB                ;DO TEST
4414  021400  034300  000000  000000    .WORD   34300,0,0,1      ;ACO
```

```
 4415  021406  000001
 4416  021410  140300  000000  000000          .WORD   140300,0,0,0     ;FSRC
 4417  021416  000000
 4418  021420  134200  000000  000000          .WORD   134200,0,0,1     ;RESULT
 4419  021426  000001
 4420  021430  000200                          .WORD   200              ; TEST FPS
 4421  021432  000210                          .WORD   210              ;RESULT FPS
 4422                          ;4/TRUNCATE
 4423  021434  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
 4424  021440  004767  000334                  JSR     R7,DVDSUB                ;DO TEST
 4425  021444  034300  000000  000000          .WORD   34300,0,0,1      ;AC0
 4426  021452  000001
 4427  021454  140300  000000  000000          .WORD   140300,0,0,0     ;FSRC
 4428  021462  000000
 4429  021464  134200  000000  000000          .WORD   134200,0,0,0     ;RESULT
 4430  021472  000000
 4431  021474  000240                          .WORD   240              ; TEST FPS
 4432  021476  000250                          .WORD   250              ;RESULT FPS
 4433                          ;5/ROUND NEGATIVE AC, FSRC
 4434  021500  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
 4435  021504  004767  000270                  JSR     R7,DVDSUB                ;DO TEST
 4436  021510  177642  000000  000000          .WORD   177642,0,0,151   ;AC0
 4437  021516  000151
 4438  021520  166600  000000  000000          .WORD   166600,0,0,123   ;FSRC
 4439  021526  000123
 4440  021530  051242  000000  000000          .WORD   51242,0,0,0              ;RESULT
 4441  021536  000000
 4442  021540  000200                          .WORD   200              ; TEST FPS
 4443  021542  000200                          .WORD   200              ;RESULT FPS
 4444                          ;6/TRUNCATE NEAGTIVE AC, FSRC
 4445  021544  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
 4446  021550  004767  000224                  JSR     R7,DVDSUB                ;DO TEST
 4447  021554  177642  000000  000000          .WORD   177642,0,0,151   ;AC0
 4448  021562  000151
 4449  021564  166600  000000  000000          .WORD   166600,0,0,123   ;FSRC
 4450  021572  000123
 4451  021574  051241  177777  177777          .WORD   51241,-1,-1,-1           ;RESULT
 4452  021602  177777
 4453  021604  000240                          .WORD   240              ; TEST FPS
 4454  021606  000240                          .WORD   240              ;RESULT FPS
 4455                          ;7/AC=FSRC
 4456  021610  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
 4457  021614  004767  000160                  JSR     R7,DVDSUB                ;DO TEST
 4458  021620  055521  047621  100333          .WORD   55521,47621,100333,-1    ;AC0
 4459  021626  177777
 4460  021630  055521  047621  100333          .WORD   55521,47621,100333,-1    ;FSRC
 4461  021636  177777
 4462  021640  040200  000000  000000          .WORD   40200,0,0,0              ;RESULT
 4463  021646  000000
 4464  021650  007717                          .WORD   7717             ; TEST FPS
 4465  021652  007700                          .WORD   7700             ;RESULT FPS
 4466                          ;8/UNDERFLOW TRAPS ENABLED, UV RESULT
 4467  021654  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
 4468  021662  004767  000112                  JSR     R7,DVDSUB                ;DO TEST
 4469  021666  100200  000000  000000          .WORD   100200,0,0,0             ;AC0
 4470  021674  000000
```

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4471  021676  077777  000000  000000          .WORD   77777,0,0,0                ;FSRC
4472  021704  000000
4473  021706  140400  100200  100200          .WORD   140400,100200,100200,100201     ;RESULT
4474  021714  100201
4475  021716  002200                          .WORD   2200            ; TEST FPS
4476  021720  102210                          .WORD   102210          ;RESULT FPS
4477  021722  000012                          .WORD   12              ;FEC
4478                                  ;9/OVERFLOW TRAPS ENABLED
4479  021724  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
4480  021732  004767  000042                  JSR     R7,DVDSUB               ;DO TEST
4481  021736  077000  123465  012346          .WORD   77000,123465,12346,525          ;ACO
4482  021744  000525
4483  021746  000303  000001  140000          .WORD   303,1,140000,140001             ;FSRC
4484  021754  140001
4485  021756  036650  163002  103645          .WORD   36650,163002,103645,64003       ;RESULT
4486  021764  064003
4487  021766  001700                          .WORD   1700            ; TEST FPS
4488  021770  101702                          .WORD   101702          ;RESULT FPS
4489  021772  000010                          .WORD   10              ;FEC
4490                                  ;
4491
4492  021774  000167  000242                  JMP     HOP11                   ;HOP OVER SUBROUTINE
4493                                  ;*X*X*X
```

```
4527                                    ;
4528                                    ;INSTRUCTION TRAPPED
4529  022062  032737  000001  001042  50$:    BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
4530  022070  001005                          BNE     51$                     ;BRANCH IF EXPECTING A TRAP
4531  022072  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4532  022074  000352                          .WORD   352                     ;UNIQUE ERROR NUMBER
4533  022076  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4534                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
4535  022100  000167  000020                  JMP     2$                      ;REJOIN CODE
4536  022104  012604                  51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
4537  022106  005726                          TST     (SP)+                   ;CLEAN UP STACK
4538  022110  022704  022036                  CMP     #1$,R4                  ;
4539  022114  001403                          BEQ     2$                      ;BRANCH IF GOOD COMPARE
4540  022116  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4541  022120  000353                          .WORD   353                     ;UNIQUE ERROR NUMBER
4542  022122  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4543                                                                  ;PC WAS INCORRECT
4544                                    ;
4545                                    ;COMMON CODE FOR TRAP AND NO TRAP
4546  022124  170203                  2$:     STFPS   R3                      ;SAVE FPS
4547  022126  012702  000200                  MOV     #200,R2                 ;SET FPP TO DOUBLE
4548  022132  170102                          LDFPS   R2
4549  022134  012701  001126                  MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4550  022140  174011                          STD     AC0,(R1)                ;SAVE AC0  RESULT
4551  022142  026503  000032                  CMP     32(R5),R3               ;VERIFY STATUS
4552  022146  001403                          BEQ     3$                      ;BRANCH IF GOOD
4553  022150  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4554  022152  000354                          .WORD   354                     ;UNIQUE ERROR NUMBER
4555  022154  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4556                                                                  ;BAD FPS
4557  022156  010504                  3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
4558  022160  062704  000020                  ADD     #20,R4
4559  022164  004767  157756          4$:     JSR     R7,DATVER                       ;VERIFY DATA
4560  022170  005767  156644                  TST     COUNT
4561  022174  001403                          BEQ     5$                      ;BRANCH IF GOOD
4562  022176  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4563  022200  000355                          .WORD   355                     ;UNIQUE ERROR NUMBER
4564  022202  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4565                                                                  ;BAD AC0
4566  022204  005737  001042          5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
4567  022210  001002                          BNE     6$                      ;BRANCH IF NEED TO CHECK
4568  022212  000165  000034                  JMP     34(R5)                  ;RETURN FROM TEST
4569  022216  170301                  6$:     STST    R1                      ;SAVE FEC
4570  022220  016504  000034                  MOV     34(R5),R4               ;GET FEC
4571  022224  020401                          CMP     R4,R1                   ;VERIFY FEC
4572  022226  001403                          BEQ     7$                      ;BRANCH IF GOOD
4573  022230  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4574  022232  000356                          .WORD   356                     ;UNIQUE ERROR NUMBER
4575  022234  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4576                                                                  ;BAD FEC
4577  022236  000165  000036          7$:     JMP     36(R5)                  ;RETURN FROM TEST
4578                                    ;
4579  022242                          MOP11:
4580  022242                          MMULF:
4581                                    ;;*****************************************************************
4582                                    ;*TEST 63        TEST MULF
```

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4583
4584  022242
4585  022242  005267  156536          ;;*****************************************************************
4586                                  TST63:
4587  022246  005037  001042                  INC     $TESTN                  ;INCREMENT TEST NUMBER
4588  022252  004767  000564          ;1/AC0=FSRC=0 -INTERRUPTS DISABLED
4589  022256  000000  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4590  022262  000000  000000                  JSR     R7,MLFSUB                       ;DO TEST
4591  022266  000000  000000                  .WORD   0,0     ;AC0
4592  022272  007517                          .WORD   0,0     ;FSRC
4593  022274  007504                          .WORD   0,0                     ;RESULT
4594                                          .WORD   7517                    ; TEST FPS
4595  022276  005037  001042                  .WORD   7504                    ;RESULTANT FPS
4596  022302  004767  000534          ;2/AC>FSRC=0 - INTERRUPTS ON
4597  022306  000200  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4598  022312  000000  000000                  JSR     R7,MLFSUB                       ;DO TEST
4599  022316  000000  000000                  .WORD   200,0   ;AC0
4600  022322  000013                          .WORD   0,0     ;FSRC
4601  022324  000004                          .WORD   0,0                     ;RESULT
4602                                          .WORD   13                      ; TEST FPS
4603  022326  005037  001042                  .WORD   4                       ;RESULTANT FPS
4604  022332  004767  000504          ;3/AC=0 FSRC>0 -
4605  022336  000100  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4606  022342  000300  000000                  JSR     R7,MLFSUB                       ;DO TEST
4607  022346  000000  000000                  .WORD   100,0   ;AC0
4608  022352  007500                          .WORD   300,0   ;FSRC
4609  022354  007504                          .WORD   0,0                     ;RESULT
4610                                          .WORD   7500                    ; TEST FPS
4611  022356  005037  001042                  .WORD   7504                    ;RESULTANT FPS
4612  022362  004767  000454          ;4/AC=1 >FSRC - ROUND
4613  022366  040200  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4614  022372  040177  177777                  JSR     R7,MLFSUB                       ;DO TEST
4615  022376  040177  177777                  .WORD   40200,0 ;AC0
4616  022402  000000                          .WORD   40177,-1                ;FSRC
4617  022404  000000                          .WORD   40177,-1                        ;RESULT
4618                                          .WORD   0                       ; TEST FPS
4619  022406  005037  001042                  .WORD   0                       ;RESULTANT FPS
4620  022412  004767  000424          ;5/TRUNCATE
4621  022416  040177  177777                  CLR     @#FLAG                  ;NO INTERRUPT
4622  022422  040200  000000                  JSR     R7,MLFSUB                       ;DO TEST
4623  022426  040177  177777                  .WORD   40177,-1                ;AC0
4624  022432  000040                          .WORD   40200,0 ;FSRC
4625  022434  000040                          .WORD   40177,-1                        ;RESULT
4626                                          .WORD   40                      ; TEST FPS
4627  022436  005037  001042                  .WORD   40                      ;RESULTANT FPS
4628  022442  004767  000374          ;6/NORMALIZE
4629  022446  040100  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4630  022452  040100  000000                  JSR     R7,MLFSUB                       ;DO TEST
4631  022456  040020  000000                  .WORD   40100,0 ;AC0
4632  022462  000012                          .WORD   40100,0 ;FSRC
4633  022464  000000                          .WORD   40020,0                 ;RESULT
4634                                          .WORD   12                      ; TEST FPS
4635  022466  005037  001042                  .WORD   0                       ;RESULTANT FPS
4636  022472  004767  000344          ;7/ROUND
4637  022476  017500  000000                  CLR     @#FLAG                  ;NO INTERRUPT
4638  022502  023652  125252                  JSR     R7,MLFSUB                       ;DO TEST
                                        .WORD   17500,0 ;AC0
                                        .WORD   23652,125252    ;FSRC
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4639  022506  003177  177777                .WORD   3177, 1         ;RESULT
4640  022512  007417                        .WORD   7417             ; TEST FPS
4641  022514  007400                        .WORD   7400             ;RESULTANT FPS
4642                              ;8/AC>0>FSRC ROUND
4643  022516  005037  001042                CLR     @#FLAG           ;NO INTERRUPT
4644  022522  004767  000314                JSR     R7,MLFSUB                ;DO TEST
4645  022526  040342  177777                .WORD   40342,-1         ;ACO
4646  022532  176543  025252                .WORD   176543,025252    ;FSRC
4647  022536  176711  067324                .WORD   176711,67324             ;RESULT
4648  022542  007500                        .WORD   7500             ; TEST FPS
4649  022544  007510                        .WORD   7510             ;RESULTANT FPS
4650                              ;9/IAC<FSRC<0, ROUND
4651  022546  005037  001042                CLR     @#FLAG           ;NO INTERRUPT
4652  022552  004767  000264                JSR     R7,MLFSUB                ;DO TEST
4653  022556  144600  000000                .WORD   144600,0                 ;ACO
4654  022562  154000  000000                .WORD   154000,0                 ;FSRC
4655  022566  060400  000000                .WORD   60400,0          ;RESULT
4656  022572  000017                        .WORD   17               ; TEST FPS
4657  022574  000000                        .WORD   0                ;RESULT FPS
4658                              ;10/AC<FSRC, ROUND
4659  022576  005037  001042                CLR     @#FLAG           ;NO INTERRUPT
4660  022602  004767  000234                JSR     R7,MLFSUB                ;DO TEST
4661  022606  060000  000000                .WORD   60000,0          ;ACO
4662  022612  140377  177776                .WORD   140377,177776            ;FSRC
4663  022616  160177  177776                .WORD   160177,177776            ;RESULT
4664  022622  000017                        .WORD   17               ; TEST FPS
4665  022624  000010                        .WORD   10               ;RESULT FPS
4666                              ;11/AC>0>FSRC, TRUNCATE
4667  022626  005037  001042                CLR     @#FLAG           ;NO INTERRUPT
4668  022632  004767  000204                JSR     R7,MLFSUB                ;DO TEST
4669  022636  060000  000000                .WORD   60000,0          ;ACO
4670  022642  140377  177776                .WORD   140377,177776            ;FSRC
4671  022646  160177  177776                .WORD   160177,177776            ;RESULT
4672  022652  007547                        .WORD   7547             ; TEST FPS
4673  022654  007550                        .WORD   7550             ;RESULT FPS
4674                              ;12/UNDERFLOW, NO INTERRUPTS
4675  022656  012737  000002  001042        MOV     #2,@#FLAG                ;NO INTERRUPT
4676  022664  004767  000152                JSR     R7,MLFSUB                ;DO TEST
4677  022670  000200  000001                .WORD   200.1            ;ACO
4678  022674  000200  000001                .WORD   200.1            ;FSRC
4679  022700  040200  000002                .WORD   40200.2          ;RESULT
4680  022704  042117                        .WORD   42117            ; TEST FPS
4681  022706  142100                        .WORD   142100           ;RESULT FPS
4682  022710  000012                        .WORD   12               ;FEC
4683                              ;13/OVERFLOW, TRAP
4684  022712  012737  000001  001042        MOV     #1,@#FLAG                ;INTERRUPT
4685  022720  004767  000116                JSR     R7,MLFSUB                ;DO TEST
4686  022724  177777  177777                .WORD   177777,-1                ;ACO
4687  022730  040300  000000                .WORD   40300,0          ;FSRC
4688  022734  100077  177777                .WORD   100077,-1                ;RESULT
4689  022740  001117                        .WORD   1117             ; TEST FPS
4690  022742  101116                        .WORD   101116           ;RESULT FPS
4691  022744  000010                        .WORD   10               ;FEC
4692                              ;14/OVERFLOW NO TRAP
4693  022746  012737  000002  001042        MOV     #2,@#FLAG                ;NO INTERRUPT
4694  022754  004767  000062                JSR     R7,MLFSUB                ;DO TEST
```

```
 4695  022760  077700  000000                .WORD   77700,0          ;AC0
 4696  022764  077700  000000                .WORD   77700,0          ;FSRC
 4697  022770  000000  000000                .WORD   0,0              ;RESULT
 4698  022774  040117                        .WORD   40117            ; TEST FPS
 4699  022776  040106                        .WORD   40106            ;RESULT FPS
 4700  023000  000010                        .WORD   10               ;FEC
 4701                              ;15/UNDEFINED VARIABLE IN FSRC, TRAP ENABLED
 4702  023002  012737  000001  001042        MOV     #1,@#FLAG                ;INTERRUPT
 4703  023010  004767  000026                JSR     R7,MLFSUB                ;DO TEST
 4704  023014  123465  000000                .WORD   123465,0                 ;AC0
 4705  023020  100022  000000                .WORD   100022,0                 ;FSRC
 4706  023024  123465  000000                .WORD   123465,0                 ;RESULT
 4707  023030  004000                        .WORD   4000             ; TEST FPS
 4708  023032  104000                        .WORD   104000           ;RESULT FPS
 4709  023034  000014                        .WORD   14               ;FEC
 4710                              ;
 4711
 4712  023036  000167  000242                JMP     HOP12
 4713                              ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4714                              ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4715                              ;
 4716                              ;               AC0
 4717                              ;               FSRC
 4718                              ;               FPS BEFORE EXECUTION
 4719                              ;               FPS AFTER EXECUTION
 4720                              ;               (FEC)
 4721                              ;
 4722                              ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4723                              ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4724                              ;
 4725  023042  012605                MLFSUB: MOV     (SP)+,R5                 ; RETURN ADDRESS TO USE AS POINTER
 4726  023044  012737  023124  000244        MOV     #50$,@#FPVEC             ;REDIRECT TRAP VECTOR
 4727  023052  012702  000200                MOV     #200,R2                  ;SET TO DOUBLE MODE FOR LOAD
 4728  023056  170102                        LDFPS   R2                       ;LOAD FPS
 4729  023060  172415                        LDD     (R5),AC0                 ;LOAD AC0 WITH TEST DATA
 4730  023062  010504                        MOV     R5,R4                    ;POINT TO FSRC DATA
 4731  023064  062704  000004                ADD     #4,R4
 4732  023070  016502  000014                MOV     14(R5),R2                ;GET TEST FPS
 4733  023074  170102                        LDFPS   R2                       ;LOAD TEST FPS
 4734                              ;
 4735  023076  171014                        MULF    (R4),AC0                 ;*TEST INSTRUCTION
 4736  023100  170001                1$:     SETF                             ;WAIT FOR POSSIBLE FPA TRAP.
 4737                              ;
 4738                              ;INSTRUCTION DIDNT TRAP
 4739  023102  032737  000001  001042        BIT     #1,@#FLAG                        ;VERIFY A NO TRAP CONDITION
 4740  023110  001426                        BEQ     2$                       ;BRANCH IF GOOD
 4741  023112  104000                        ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
 4742  023114  000357                        .WORD   357                      ;UNIQUE ERROR NUMBER
 4743  023116  002013                        .WORD   FPPERR                   ;ADDRESS OF ERROR MESSAGE
 4744                                                                  ;INSTRUCTION SHOULD HAVE TRAPPED
 4745  023120  000167  000042                JMP     2$                       ;REJOIN CODE
 4746                              ;
 4747                              ;INSTRUCTION TRAPPED
 4748  023124  032737  000001  001042  50$:   BIT     #1,@#FLAG                ;SEE IF EXPECTING A TRAP
 4749  023132  001005                        BNE     51$                      ;BRANCH IF EXPECTING A TRAP
 4750  023134  104000                        ERROR                            ;ALL ERRORS TO TRAP TO EMT VECTOR
```

```
4751  023136  000360                        .WORD   360                     ;UNIQUE ERROR NUMBER
4752  023140  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4753                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
4754  023142  000167  000020                JMP     2$                      ;REJOIN CODE
4755  023146  012604                51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
4756  023150  005726                        TST     (SP)+                   ;CLEAN UP STACK
4757  023152  022704  023100                CMP     #1$,R4                  ;
4758  023156  001403                        BEQ     2$                      ;BRANCH IF GOOD COMPARE
4759  023160  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4760  023162  000361                        .WORD   361                     ;UNIQUE ERROR NUMBER
4761  023164  002013                        .WORD   FPPERR                  ;ACDRESS OF ERROR MESSAGE
4762                                                                  ;PC WAS INCORRECT
4763                                        ;
4764                                        ;COMMON CODE FOR TRAP AND NO TRAP
4765  023166  170203                2$:     STFPS   R3                      ;SAVE FPS
4766  023170  012702  000200                MOV     #200,R2                 ;SET FPP TO DOUBLE
4767  023174  170102                        LDFPS   R2
4768  023176  012701  001126                MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
4769  023202  174011                        STD     AC0,(R1)                ;SAVE AC0  RESULT
4770  023204  026503  000016                CMP     16(R5),R3               ;VERIFY STATUS
4771  023210  001403                        BEQ     3$                      ;BRANCH IF GOOD
4772  023212  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4773  023214  000362                        .WORD   362                     ;UNIQUE ERROR NUMBER
4774  023216  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4775                                                                  ;BAD FPS
4776  023220  010504                3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
4777  023222  062704  000010                ADD     #10,R4
4778  023226  004767  156676        4$:     JSR     R7,DATVFR                       ;VERIFY DATA
4779  023232  005767  155602                TST     COUNT
4780  023236  001403                        BEQ     5$                      ;BRANCH IF GOOD
4781  023240  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4782  023242  000363                        .WORD   363                     ;UNIQUE ERROR NUMBER
4783  023244  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4784                                                                  ;BAD AC0
4785  023246  005737  001042        5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
4786  023252  001002                        BNE     6$                      ;BRANCH IF NEED TO CHECK
4787  023254  000165  000020                JMP     20(R5)                  ;RETURN FROM TEST
4788                                        ;VERIFY ERROR STATUS
4789  023260  170301                6$:     STST    R1                      ;SAVE FEC
4790  023262  016504  000020                MOV     20(R5),R4               ;GET FEC
4791  023266  020401                        CMP     R4,R1                   ;VERIFY FEC
4792  023270  001403                        BEQ     7$                      ;BRANCH IF GOOD
4793  023272  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
4794  023274  000364                        .WORD   364                     ;UNIQUE ERROR NUMBER
4795  023276  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
4796                                                                  ;BAD FEC
4797  023300  000165  000022        7$:     JMP     22(R5)                  ;RETURN FROM TEST
4798  023304                        MOP12:
4799  023304                        MMULD:
4800                                        ;;*****************************************************************
4801                                        ;*TEST 64        TEST MULD
4802                                        ;;*****************************************************************
4803  023304                        TST64:
4804  023304  005267  155474                INC     $TESTN                  ;INCREMENT TEST NUMBER
4805                                        ;1/AC=0
4806  023310  005037  001042                CLR     @#FLAG                  ;NO INTERRUPT
```

```
4807  023314  004767  000554                  JSR     R7,MLDSUB               ;DO TEST
4808  023320  000100  000000  000000          .WORD   100.0,0,0,0             ;ACO
4809  023326  000000
4810  023330  000411  177777  000000          .WORD   411, 1,0,1              ;FSRC
4811  023336  000001
4812  023340  000000  000000  000000          .WORD   0,0,0,0                 ;RESULT
4813  023346  000000
4814  023350  000200                          .WORD   200                     ; TEST FPS
4815  023352  000204                          .WORD   204                     ;RESULTANT FPS
4816                          ;2/FSRC=0
4817  023354  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4818  023360  004767  000510                  JSR     R7,MLDSUB                       ;DO TEST
4819  023364  077777  000000  000000          .WORD   77777,0,0,0             ;ACO
4820  023372  000000
4821  023374  000000  000000  000000          .WORD   0,0,0,0 ;FSRC
4822  023402  000000
4823  023404  000000  000000  000000          .WORD   0,0,0,0                 ;RESULT
4824  023412  000000
4825  023414  007700                          .WORD   7700                    ; TEST FPS
4826  023416  007704                          .WORD   7704                    ;RESULTANT FPS
4827                          ;3/AC=1
4828  023420  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4829  023424  004767  000444                  JSR     R7,MLDSUB                       ;DO TEST
4830  023430  040200  000000  000000          .WORD   40200.0,0,0             ;ACO
4831  023436  000000
4832  023440  000277  177777  177777          .WORD   277,-1,-1, 1            ;FSRC
4833  023446  177777
4834  023450  000277  177777  177777          .WORD   277,-1,-1,-1                    ;RESULT
4835  023456  177777
4836  023460  007717                          .WORD   7717                    ; TEST FPS
4837  023462  007700                          .WORD   7700                    ;RESULTANT FPS
4838                          ;4/AC>FSRC>0, TRUNCATE
4839  023464  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4840  023470  004767  000400                  JSR     R7,MLDSUB                       ;DO TEST
4841  023474  065500  000000  000000          .WORD   65500.0,0,0,1           ;ACO
4842  023502  000001
4843  023504  037577  177777  177777          .WORD   37577,-1,-1, 2          ;FSRC
4844  023512  177776
4845  023514  065077  177777  177777          .WORD   65077,-1,-1, 1                  ;RESULT
4846  023522  177777
4847  023524  007717                          .WORD   7717                    ; TEST FPS
4848  023526  007700                          .WORD   7700                    ;RESULTANT FPS
4849                          ;5/AC<FSRC<0
4850  023530  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4851  023534  004767  000334                  JSR     R7,MLDSUB                       ;DO TEST
4852  023540  137577  177777  177777          .WORD   137577,-1, 1, 2         ;ACO
4853  023546  177776
4854  023550  165400  000000  000000          .WORD   165400.0,0,1            ;FSRC
4855  023556  000001
4856  023560  065000  000000  000000          .WORD   65000.0,0,0                     ;RESULT
4857  023566  000000
4858  023570  007717                          .WORD   7717                    ; TEST FPS
4859  023572  007700                          .WORD   7700                    ;RESULTANT FPS
4860                          ;6/AC>FSRC>0
4861  023574  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4862  023600  004767  000270                  JSR     R7,MLDSUB                       ;DO TEST
```

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4863  023604  017500  000000  000000          .WORD   17500,0,0,0     ;AC0
4864  023612  000000
4865  023614  123652  125252  125252          .WORD   123652,125252,125252,125252     ;FSRC
4866  023622  125252
4867  023624  103177  177777  177777          .WORD   103177, 1, 1, 1         ;RESULT
4868  023632  177777
4869  023634  000200                          .WORD   200             ; TEST FPS
4870  023636  000210                          .WORD   210             ;RESULTANT FPS
4871                          ;7/UNDERFLOW, TRAPS DISABLED
4872  023640  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4873  023644  004767  000224                  JSR     R7,MLDSUB               ;DO TEST
4874  023650  000300  000000  000000          .WORD   300,0,0,252             ;AC0
4875  023656  000252
4876  023660  000377  000001  000002          .WORD   377,1,2,3               ;FSRC
4877  023666  000003
4878  023670  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
4879  023676  000000
4880  023700  005740                          .WORD   5740            ; TEST FPS
4881  023702  005744                          .WORD   5744            ;RESULT FPS
4882                          ;8/UNDERFLOW, TRAP ENABLED
4883  023704  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
4884  023712  004767  000156                  JSR     R7,MLDSUB               ;DO TEST
4885  023716  100277  000001  000002          .WORD   100277,1,2,-1           ;AC0
4886  023724  177777
4887  023726  100300  000001  000001          .WORD   100300,1,1,1            ;FSRC
4888  023734  000001
4889  023736  040417  040001  077403          .WORD   40417,40001,77403,0             ;RESULT
4890  023744  000000
4891  023746  002217                          .WORD   2217            ; TEST FPS
4892  023750  102200                          .WORD   102200          ;RESULT FPS
4893  023752  000012                          .WORD   12              ;FEC
4894                          ;9/OVERFLOW, TRAPS DISABLED
4895  023754  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
4896  023760  004767  000110                  JSR     R7,MLDSUB               ;DO TEST
4897  023764  177777  177777  177777          .WORD   -1,-1,-1,-1             ;AC0
4898  023772  177777
4899  023774  040200  177777  177777          .WORD   40200,-1,-1,-1          ;FSRC
4900  024002  177777
4901  024004  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
4902  024012  000000
4903  024014  006740                          .WORD   6740            ; TEST FPS
4904  024016  006746                          .WORD   6746            ;RESULT FPS
4905                          ;10/OVERFLOW, TRAPS ENABLED
4906  024020  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
4907  024026  004767  000042                  JSR     R7,MLDSUB               ;DO TEST
4908  024032  157700  025252  025252          .WORD   157700,25252,25252,25252                ;AC0
4909  024040  025252
4910  024042  167700  000000  000000          .WORD   167700,0,0,0            ;FSRC
4911  024050  000000
4912  024052  007420  017777  117777          .WORD   7420,017777,117777,117777               ;RESULT
4913  024060  117777
4914  024062  001240                          .WORD   1240            ; TEST FPS
4915  024064  101242                          .WORD   101242          ;RESULT FPS
4916  024066  000010                          .WORD   10              ;FEC
4917
4918                          ;
```

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 4919  024070  000167  000242                    JMP     HOP13
 4920
 4921                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4922                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4923                                    ;
 4924                                    ;               AC0
 4925                                    ;               FSRC
 4926                                    ;               FPS BEFORE EXECUTION
 4927                                    ;               FPS AFTER EXECUTION
 4928                                    ;               (FEC)
 4929                                    ;
 4930                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4931                                    ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
 4932                                    ;
 4933  024074  012605                    MLDSUB: MOV     (SP)+,R5                ; RETURN ADDRESS TO USE AS POINTER
 4934  024076  012737  024156  000244            MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
 4935  024104  012702  000200                    MOV     #200,R2                 ;SET TO DOUBLE MODE FOR LOAD
 4936  024110  170102                            LDFPS   R2                      ;LOAD FPS
 4937  024112  172415                            LDD     (R5),AC0                ;LOAD AC0 WITH TEST DATA
 4938  024114  010501                            MOV     R5,R1                   ;POINT TO FSRC DATA
 4939  024116  062701  000010                    ADD     #10,R1
 4940  024122  016502  000030                    MOV     30(R5),R2               ;GET TEST FPS
 4941  024126  170102                            LDFPS   R2                      ;LOAD TEST FPS
 4942                                    ;
 4943  024130  171011                            MULD    (R1),AC0                ;*TEST INSTRUCTION
 4944  024132  170011                    1$:     SETD                            ;WAIT FOR POSSIBLE FPA TRAP.
 4945                                    ;
 4946                                    ;INSTRUCTION DIDNT TRAP
 4947  024134  032737  000001  001042            BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
 4948  024142  001426                            BEQ     2$                      ;BRANCH IF GOOD
 4949  024144  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4950  024146  000365                            .WORD   365                     ;UNIQUE ERROR NUMBER
 4951  024150  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4952                                                                    ;INSTRUCTION SHOULD HAVE TRAPPED
 4953  024152  000167  000042                    JMP     2$                      ;REJOIN CODE
 4954
 4955                                    ;INSTRUCTION TRAPPED
 4956  024156  032737  000001  001042  50$:     BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
 4957  024164  001005                            BNE     51$                     ;BRANCH IF EXPECTING A TRAP
 4958  024166  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4959  024170  000366                            .WORD   366                     ;UNIQUE ERROR NUMBER
 4960  024172  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4961                                                                    ;INSTRUCTION WASNT SUPPOSE TO TRAP
 4962  024174  000167  000020                    JMP     2$                      ;REJOIN CODE
 4963  024200  012604                    51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
 4964  024202  005726                            TST     (SP)+                   ;CLEAN UP STACK
 4965  024204  022704  024132                    CMP     #1$,R4                  ;
 4966  024210  001403                            BEQ     2$                      ;BRANCH IF GOOD COMPARE
 4967  024212  104000                            ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
 4968  024214  000367                            .WORD   367                     ;UNIQUE ERROR NUMBER
 4969  024216  002013                            .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
 4970                                                                    ;PC WAS INCORRECT
 4971
 4972                                    ;COMMON CODE FOR TRAP AND NO TRAP
 4973  024220  170203                    2$:     STFPS   R3                      ;SAVE FPS
 4974  024222  012702  000200                    MOV     #200,R2                 ;SET FPP TO DOUBLE
```

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4975  024226  170102                        LDFPS   R2
4976  024230  012701  001126                MOV     #RECDST,R1          ;POINT TO RECEIVED DATA TABLE
4977  024234  174011                        STD     AC0,(R1)            ;SAVE AC0  RESULT
4978  024236  026503  000032                CMP     32(R5),R3           ;VERIFY STATUS
4979  024242  001403                        BEQ     3$                  ;BRANCH IF GOOD
4980  024244  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
4981  024246  000370                        .WORD   370                 ;UNIQUE ERROR NUMBER
4982  024250  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
4983                                                              ;BAD FPS
4984  024252  010504                3$:     MOV     R5,R4               ;POINT TO EXPECTED DATA
4985  024254  062704  000020                ADD     #20,R4
4986  024260  004767  155662        4$:     JSR     R7,DATVER                   ;VERIFY DATA
4987  024264  005767  154550                TST     COUNT
4988  024270  001403                        BEQ     5$                  ;BRANCH IF GOOD
4989  024272  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
4990  024274  000371                        .WORD   371                 ;UNIQUE ERROR NUMBER
4991  024276  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
4992                                                              ;BAD AC0
4993  024300  005737  001042        5$:     TST     @#FLAG              ;SEE IF NEED TO CHECK FEC
4994  024304  001002                        BNE     6$                  ;BRANCH IF NEED TO CHECK
4995  024306  000165  000034                JMP     34(R5)              ;RETURN FROM TEST
4996                                ;VERIFY ERROR STATUS
4997  024312  170301                6$:     STST    R1                  ;SAVE FEC
4998  024314  016504  000034                MOV     34(R5),R4           ;GET FEC
4999  024320  020401                        CMP     R4,R1               ;VERIFY FEC
5000  024322  001403                        BEQ     7$                  ;BRANCH IF GOOD
5001  024324  104000                        ERROR                       ;ALL ERRORS TO TRAP TO EMT VECTOR
5002  024326  000372                        .WORD   372                 ;UNIQUE ERROR NUMBER
5003  024330  002013                        .WORD   FPPERR              ;ADDRESS OF ERROR MESSAGE
5004                                                                    ;BAD FEC
5005  024332  000165  000036        7$:     JMP     36(R5)              ;RETURN FROM TEST
5006  024336                        MOP13:
5007  024336                        MMODF:
5008                                ;;*****************************************************************
5009                                ;*TEST 65        TEST MODF
5010                                ;;*****************************************************************
5011  024336                        TST65:
5012  024336  005267  154442                INC     $TESTN                      ;INCREMENT TEST NUMBER
5013                                ;1/AC=0 FSRC=0
5014  024342  005037  001042                CLR     @#FLAG              ;NO INTERRUPT
5015  024346  004767  000554                JSR     R7,MDFSUB                   ;DO TEST
5016  024352  000100  000000                .WORD   100.0   ;AC0
5017  024356  012346  177777                .WORD   12346.,-1           ;FSRC
5018  024362  000000  000000                .WORD   0.0                 ;FRACTIONAL RESULT
5019  024366  000000  000000                .WORD   0,0                 ;INTEGER RESULT
5020  024372  000013                        .WORD   13                  ; TEST FPS
5021  024374  000004                        .WORD   4                   ;RESULTANT FPS
5022                                ;2/FSRC=0
5023  024376  005037  001042                CLR     @#FLAG              ;NO INTERRUPT
5024  024402  004767  000520                JSR     R7,MDFSUB                   ;DO TEST
5025  024406  012356  177777                .WORD   12356.,-1           ;AC0
5026  024412  000000  000000                .WORD   0.0     ;FSRC
5027  024416  000000  000000                .WORD   0.0                 ;FRACTIONAL RESULT
5028  024422  000000  000000                .WORD   0,0                 ;INTEGER RESULT
5029  024426  000003                        .WORD   3                   ; TEST FPS
5030  024430  000004                        .WORD   4       ;RESULTANT FPS
```

```
5031
5032  024432  005037  001042          ;3/AC=0
5033  024436  004767  000464                CLR     @#FLAG          ;NO INTERRUPT
5034  024442  000000  000000                JSR     R7,MDFSUB               ;DO TEST
5035  024446  177777  177777                .WORD   0,0             ;ACO
5036  024452  000000  000000                .WORD    1,-1           ;FSRC
5037  024456  000000  000000                .WORD   0,0             ;FRACTIONAL  RESULT
5038  024462  007500                       .WORD   0,0             ;INTEGER RESULT
5039  024464  007504                       .WORD   7500            ; TEST FPS
5040                                       .WORD   7504            ;RESULT FPS
5041  024466  005037  001042          ;4/AC>FSRC>0
5042  024472  004767  000430                CLR     @#FLAG          ;NO INTERRUPT
5043  024476  046252  125252                JSR     R7,MDFSUB               ;DO TEST
5044  024502  040300  000000                .WORD   46252,125252    ;ACO
5045  024506  000000  000000                .WORD   40300,0 ;FSRC
5046  024512  046377  177777                .WORD   0,0             ;FRACTIONAL RESULT
5047  024516  000013                       .WORD   46377,-1                ;INTEGER RESULT
5048  024520  000004                       .WORD   13              ; TEST FPS
5049                                       .WORD   4               ;RESULTANT FPS
5050  024522  005037  001042          ;5/AC>FSRC>0
5051  024526  004767  000374                CLR     @#FLAG          ;NO INTERRUPT
5052  024532  077652  125252                JSR     R7,MDFSUR               ;DO TEST
5053  024536  040300  000000                .WORD   77652,125252    ;ACO
5054  024542  000000  000000                .WORD   40300,0 ;FSRC
5055  024546  077777  177777                .WORD   0,0             ;FRACTIONAL RESULT
5056  024552  000000                       .WORD   77777,-1                ;INTEGER RESULT
5057  024554  000004                       .WORD   0               ; TEST FPS
5058                                       .WORD   4               ;RESULTANT FPS
5059
5060  024556  005037  001042          ;6/AC>0<FSRC, INTEGERS
5061  024562  004767  000340                CLR     @#FLAG          ;NO INTERRUPT
5062  024566  060600  000000                JSR     R7,MDFSUB               ;DO TEST
5063  024572  147400  025700                .WORD   60600,0         ;ACO
5064  024576  000000  000000                .WORD   147400,25700            ;FSRC
5065  024602  170000  025700                .WORD   0,0             ;FRACTIONAL  RESULT
5066  024606  007400                       .WORD   170000,25700            ;INTEGER RESULT
5067  024610  007404                       .WORD   7400            ; TEST FPS
5068                                       .WORD   7404            ;RESULT FPS
5059  024612  005037  001042          ;7/AC<0<FSRC, FRACTIONAL
5070  024616  004767  000304                CLR     @#FLAG          ;NO INTERRUPT
5071  024622  100227  177777                JSR     R7,MDFSUB               ;DO TEST
5072  024626  044025  025252                .WORD   100227,-1               ;ACO
5073  024632  104061  021251                .WORD   44025,25252             ;FSRC
5074  024636  000000  000000                .WORD   104061,21251            ;FRACTIONAL  RESULT
5075  024642  000000                       .WORD   0,0             ;INTEGER RESULT
5076  024644  000010                       .WORD   0               ; TEST FPS
5077                                       .WORD   10              ;RESULT FPS
5078  024646  005037  001042          ;8/AC<0>FSRC, TRUNCATE
5079  024652  004767  000250                CLR     @#FLAG          ;NO I'HTERRUPT
5080  024656  046252  125252                JSR     R7,MDFSUB               ;DO TEST
5081  024662  040300  000000                .WORD   46252,125252            ;ACO
5082  024666  000000  000000                .WORD   40300,0         ;FSRC
5083  024672  046377  177777                .WORD   0,0             ;FRACTIONAL  RESULT
5084  024676  000053                       .WORD   46377,-1                ;INTEGER RESULT
5085  024700  000044                       .WORD   53              ; TEST FPS
5086                                       .WORD   44              ;RESULT FPS
                                   ;9/ROUND INTEGER
```

```
5087  024702  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5088  024706  004767  000214                  JSR     R7,MDFSUB               ;DO TEST
5089  024712  046252  125252                  .WORD   46252.125252            ;ACO
5090  024716  040300  000000                  .WORD   40300,0         ;FSRC
5091  024722  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5092  024726  046377  177777                  .WORD   46377, 1                ;INTEGER RESULT
5093  024732  000013                          .WORD   13              ; TEST FPS
5094  024734  000004                          .WORD   4               ;RESULT FPS
5095                          ;10/TRUNCATE FRACTION
5096  024736  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5097  024742  004767  000160                  JSR     R7,MDFSUB               ;DO TEST
5098  024746  040777  177777                  .WORD   40777,-1                ;ACO
5099  024752  040200  000000                  .WORD   40200,0         ;FSRC
5100  024756  040177  177770                  .WORD   40177,177770            ;FRACTIONAL  RESULT
5101  024762  040740  000000                  .WORD   40740,0         ;INTEGER RESULT
5102  024766  000000                          .WORD   0               ; TEST FPS
5103  024770  000000                          .WORD   0               ;RESULT FPS
5104                          ;11/ROUND INTEGER
5105  024772  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5106  024776  004767  000124                  JSR     R7,MDFSUB               ;DO TEST
5107  025002  000000  000000                  .WORD   0,0             ;ACO
5108  025006  000000  000000                  .WORD   0,0             ;FSRC
5109  025012  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5110  025016  000000  000000                  .WORD   0,0             ;INTEGER RESULT
5111  025022  000000                          .WORD   0               ; TEST FPS
5112  025024  000004                          .WORD   4               ;RESULT FPS
5113                          ;12/ROUND FRACTION
5114  025026  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5115  025032  004767  000070                  JSR     R7,MDFSUB               ;DO TEST
5116  025036  040225  125252                  .WORD   40225.125252            ;ACO
5117  025042  066652  052525                  .WORD   66652.52525             ;FSRC
5118  025046  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5119  025052  066707  025160                  .WORD   66707.25160             ;INTEGER RESULT
5120  025056  007027                          .WORD   7027            ; TEST FPS
5121  025060  007004                          .WORD   7004            ;RESULT FPS
5122                          ;/OVERFLOW
5123  025062  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
5124  025070  004767  000032                  JSR     R7,MDFSUB               ;DO TEST
5125  025074  076000  000000                  .WORD   76000,0         ;ACO
5126  025100  076000  000000                  .WORD   76000,0         ;FSRC
5127  025104  000000  000000                  .WORD   0,0             ;FRACTIONAL  RESULT
5128  025110  033600  000000                  .WORD   33600,0         ;INTEGER RESULT
5129  025114  001000                          .WORD   1000            ; TEST FPS
5130  025116  101006                          .WORD   101006          ;RESULT FPS
5131  025120  000010                          .WORD   10              ;FEC
5132                          ;
5133  025122  000167  000310                  JMP     HOP14
5134
5135                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5136                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5137                          ;
5138                          ;               ACO
5139                          ;               FSRC
5140                          ;               FRACTIONAL RESULT
5141                          ;               INTEGER RESULT
5142                          ;               FPS BEFORE EXECUTION
```

```
                                        ;               FPS AFTER EXECUTION
                                        ;               (FEC)
                                        ;
                                        ;*X*X*X
```

```
025304  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025306  000376                          .WORD   376                             ;UNIQUE ERROR NUMBER
025310  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD FPS
025312  010504                  3$:     MOV     R5,R4                           ;POINT TO EXPECTED DATA
025314  062704  000010                  ADD     #10,R4
025320  004767  154604          4$:     JSR     R7,DATVFR                               ;VERIFY DATA
025324  005767  153510                  TST     COUNT
025330  001403                          BEQ     5$                              ;BRANCH IF GOOD
025332  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025334  000377                          .WORD   377                             ;UNIQUE ERROR NUMBER
025336  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD AC0
                                ;SAVE INTEGER RESULT
025340  174111                  5$:     STD     AC1,(R1)                        ;SAVE AC1 RESULT
025342  010504                          MOV     R5,R4                   ;POINT TO EXPECTED
025344  062704  000014                  ADD     #14,R4
025350  004767  154554                  JSR     R7,DATVFR                       ;VERIFY DATA
025354  005767  153460                  TST     COUNT                           ;
025360  001403                          BEQ     6$                              ;BRANCH IF GOOD
025362  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025364  000400                          .WORD   400                             ;UNIQUE ERROR NUMBER
025366  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD AC1
025370  005737  001042          6$:     TST     @#FLAG                          ;SEE IF NEED TO CHECK FEC
025374  001002                          BNE     7$                              ;BRANCH IF NEED TO CHECK
025376  000165  000024                  JMP     24(R5)                          ;RETURN FROM TEST
025402  170301                  7$:     STST    R1                              ;SAVE FEC
025404  016504  000024                  MOV     24(R5),R4                       ;GET FEC
025410  020401                          CMP     R4,R1                           ;VERIFY FEC
025412  001403                          BEQ     8$                              ;BRANCH IF GOOD
025414  104000                          ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
025416  000401                          .WORD   401                             ;UNIQUE ERROR NUMBER
025420  002013                          .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                                ;BAD FEC
025422  000165  000026          8$:     JMP     26(R5)                  ;RETURN FROM TEST
                                ;
025426  177777  177777  177777  MODGAR: .WORD   -1,-1,-1,-1                     ;KNOWN DATA FOR AC1
025434  177777
025436                          HOP14:

025436                          MMODD:
                                ;;*****************************************************************
                                ;*TEST 66        TEST MODD
                                ;;*****************************************************************
025436                          TST66:
025436  005267  153342                  INC     $TESTN                          ;INCREMENT TEST NUMBER
                                ;1/AC>FSRC=0
025442  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPT
025446  004767  001164                  JSR     R7,MODSUB                       ;DO TEST
025452  012345  177777  177777          .WORD   12345,-1,-1,-1          ;AC0
025460  177777
025462  000100  000000  000000          .WORD   100,0,0,0               ;FSRC
025470  000000
025472  000000  000000  000000          .WORD   0,0,0,0                 ;FRACTIONAL RESULT
025500  000000
```

```
5255  025502  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5256  025510  000000
5257  025512  000200                          .WORD   200              ; TEST FPS
5258  025514  000204                          .WORD   204              ;RESULTANT FPS
5259                                ;2/AC=0<FSRC
5260  025516  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5261  025522  004767  001110                  JSR     R7,MODSUB                ;DO TEST
5262  025526  000000  000000  000000          .WORD   0,0,0,0 ;AC0
5263  025534  000000
5264  025536  001234  177777  000000          .WORD   1234, 1.0,0      ;FSRC
5265  025544  000000
5266  025546  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5267  025554  000000
5268  025556  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5269  025564  000000
5270  025566  007717                          .WORD   7717             ; TEST FPS
5271  025570  007704                          .WORD   7704             ;RESULTANT FPS
5272                                ;3/AC>FSRC>0
5273  025572  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5274  025576  004767  001034                  JSR     R7,MODSUB                ;DO TEST
5275  025602  056252  125252  125252          .WORD   56252,125252,125252,125250       ;AC0
5276  025610  125250
5277  025612  040300  000000  000000          .WORD   40300,0,0,0      ;FSRC
5278  025620  000000
5279  025622  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5280  025630  000000
5281  025632  056377  177777  177777          .WORD   56377,-1,-1,-4           ;INTEGER RESULT
5282  025640  177774
5283  025642  000213                          .WORD   213              ; TEST FPS
5284  025644  000204                          .WORD   204              ;RESULTANT FPS
5285                                ;4/AC<0>FSRC
5286  025646  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5287  025652  004767  000760                  JSR     R7,MODSUB                ;DO TEST
5288  025656  140240  000000  000000          .WORD   140240,0,0,0     ;AC0
5289  025664  000000
5290  025666  063714  146314  133572          .WORD   63714,146314,133572,167737       ;FSRC
5291  025674  167737
5292  025676  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5293  025704  000000
5294  025706  163777  177777  162531          .WORD   163777,-1,162531,125726          ;INTEGER RESULT
5295  025714  125726
5296  025716  000210                          .WORD   210              ; TEST FPS
5297  025720  000204                          .WORD   204              ;RESULTANT FPS
5298                                ;5/AC>FSRC>0
5299  025722  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5300  025726  004767  000704                  JSR     R7,MODSUB                ;DO TEST
5301  025732  056200  000000  000000          .WORD   56200,0,0,1      ;AC0
5302  025740  000001
5303  025742  040340  000000  000000          .WORD   40340,0,0,0      ;FSRC
5304  025750  000000
5305  025752  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL RESULT
5306  025760  000000
5307  025762  056340  000000  000000          .WORD   56340,0,0,1              ;INTEGER RESULT
5308  025770  000001
5309  025772  000213                          .WORD   213              ; TEST FPS
5310  025774  000204                          .WORD   204              ;RESULTANT FPS
```

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5311                                    ;6/TRUNCATE
5312  025776  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5313  026002  004767  000630                    JSR     R7,MODSUB               ;DO TEST
5314  026006  056252  125252  125252            .WORD   56252,125252,125252,125252              ;ACO
5315  026014  125252
5316  026016  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5317  026024  000000
5318  026026  000000  000000  000000            .WORD   0,0,0,0         ;FRACTIONAL  RESULT
5319  026034  000000
5320  026036  056377  177777  177777            .WORD   56377,-1,-1, 1          ;INTEGER RESULT
5321  026044  177777
5322  026046  000253                            .WORD   253             ; TEST FPS
5323  026050  000244                            .WORD   244             ;RESULT FPS
5324                                    ;7/TRUNCATE FRACTION
5325  026052  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5326  026056  004767  000554                    JSR     R7,MODSUB               ;DO TEST
5327  026062  023252  125252  125252            .WORD   23252,125252,125252,125252              ;ACO
5328  026070  125252
5329  026072  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5330  026100  000000
5331  026102  023377  177777  177777            .WORD   23377,-1,-1,-1          ;FRACTIONAL  RESULT
5332  026110  177777
5333  026112  000000  000000  000000            .WORD   0,0,0,0         ;INTEGER RESULT
5334  026120  000000
5335  026122  000253                            .WORD   253             ; TEST FPS
5336  026124  000240                            .WORD   240             ;RESULT FPS
5337                                    ;8/ROUND INTEGER
5338  026126  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5339  026132  004767  000500                    JSR     R7,MODSUB               ;DO TEST
5340  026136  076600  000000  000000            .WORD   76600,0,0,125252                ;ACO
5341  026144  125252
5342  026146  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5343  026154  000000
5344  026156  000000  000000  000000            .WORD   0,0,0,0         ;FRACTIONAL  RESULT
5345  026164  000000
5346  026166  076700  000000  000000            .WORD   76700,0,0,-1            ;INTEGER RESULT
5347  026174  177777
5348  026176  000200                            .WORD   200             ; TEST FPS
5349  026200  000204                            .WORD   204             ;RESULT FPS
5350                                    ;9/ROUND THROUGH FRACTION
5351  026202  005037  001042                    CLR     @#FLAG          ;NO INTERRUPT
5352  026206  004767  000424                    JSR     R7,MODSUB               ;DO TEST
5353  026212  041525  052525  052525            .WORD   41525,052525,52525,52525                ;ACO
5354  026220  052525
5355  026222  040300  000000  000000            .WORD   40300,0,0,0             ;FSRC
5356  026230  000000
5357  026232  040177  177777  177777            .WORD   40177,-1,-1,177740              ;FRACTIONAL  RESULT
5358  026240  177740
5359  026242  041636  000000  000000            .WORD   41636,0,0,0             ;INTEGER RESULT
5360  026250  000000
5361  026252  007700                            .WORD   7700            ; TEST FPS
5362  026254  007700                            .WORD   7700            ;RESULT FPS
5363                                    ;/OVERFLOW, TRAPS ENABLED
5364  026256  012737  000001  001042            MOV     #1,@#FLAG               ;INTERRUPT
5365  026264  004767  000346                    JSR     R7,MODSUB               ;DO TEST
5366  026270  177777  177777  177777            .WORD   -1,-1,-1,-1             ;ACO
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5367  026276  177777
5368  026300  040400  000000  000000          .WORD   40400,0,0,0             ;FSRC
5369  026306  000000
5370  026310  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5371  026316  000000
5372  026320  100177  177777  177777          .WORD   100177,-1,-1,-1          ;INTEGER RESULT
5373  026326  177777
5374  026330  007700                          .WORD   7700             ; TEST FPS
5375  026332  107706                          .WORD   107706           ;RESULT FPS
5376  026334  000010                          .WORD   10               ;FEC
5377                                ;/INTEGER CHOPPED TO 56 BITS
5378  026336  005037  001042                  CLR     @#FLAG           ;NO INTERRUPT
5379  026342  004767  000270                  JSR     R7,MODSUB                ;DO TEST
5380  026346  056700  000000  000000          .WORD   56700,0,0,-1             ;ACO
5381  026354  177777
5382  026356  044440  177777  177777          .WORD   44440,-1,-1,-1           ;FSRC
5383  026364  177777
5384  026366  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5385  026374  000000
5386  026376  063161  100000  000001          .WORD   63161,100000,1,40775             ;INTEGER RESULT
5387  026404  040775
5388  026406  000200                          .WORD   200              ; TEST FPS
5389  026410  000204                          .WORD   204              ;RESULT FPS
5390                                ;/OVERFLOW, TRAPS DISABLED
5391  026412  012737  000002  001042          MOV     #2,@#FLAG                ;NO INTERRUPT
5392  026420  004767  000212                  JSR     R7,MODSUB                ;DO TEST
5393  026424  066600  000000  000000          .WORD   66600,0,0,0              ;ACO
5394  026432  000000
5395  026434  066600  000000  000000          .WORD   66600,0,0,0              ;FSRC
5396  026442  000000
5397  026444  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5398  026452  000000
5399  026454  015200  000000  000000          .WORD   15200,0,0,0              ;INTEGER RESULT
5400  026462  000000
5401  026464  047700                          .WORD   47700            ; TEST FPS
5402  026466  147706                          .WORD   147706           ;RESULT FPS
5403  026470  000010                          .WORD   10               ;FEC
5404                                ;/UNDERFLOW, TRAPS DISABLED
5405  026472  012737  000002  001042          MOV     #2,@#FLAG                ;NO INTERRUPT
5406  026500  004767  000132                  JSR     R7,MODSUB                ;DO TEST
5407  026504  100277  000001  000002          .WORD   100277,1,2,-1            ;ACO
5408  026512  177777
5409  026514  100300  000001  000001          .WORD   100300,1,1,1             ;FSRC
5410  026522  000001
5411  026524  000000  000000  000000          .WORD   0,0,0,0          ;FRACTIONAL  RESULT
5412  026532  000000
5413  026534  000000  000000  000000          .WORD   0,0,0,0          ;INTEGER RESULT
5414  026542  000000
5415  026544  005200                          .WORD   5200             ; TEST FPS
5416  026546  005204                          .WORD   5204             ;RESULT FPS
5417  026550  000010                          .WORD   10               ;FEC
5418                                ;/UNDERFLOW TRAPS ENABLED, UV AS RESULT
5419  026552  012737  000001  001042          MOV     #1,@#FLAG                ;INTERRUPT
5420  026560  004767  000052                  JSR     R7,MODSUB                ;DO TEST
5421  026564  100277  000001  000002          .WORD   100277,1,2,-1            ;ACO
5422  026572  177777
```

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5423  026574  100300  000001  000001          .WORD   100300,1,1,1            ;FSRC
5424  026602  000001
5425  026604  040417  040001  077403          .WORD   40417,40001,77403,0             ;FRACTIONAL  RESULT
5426  026612  000000
5427  026614  000000  000000  000000          .WORD   0,0,0,0         ;INTEGER RESULT
5428  026622  000000
5429  026624  002200                          .WORD   2200            ; TEST FPS
5430  026626  102200                          .WORD   102200          ;RESULT FPS
5431  026630  000012                          .WORD   12              ;FEC
5432                                  ;
5433
5434  026632  000167  000300                  JMP     HOP15           ;JUMP OVER SUBROUTINE
5435                                  ;*X*X*X
```

```
5479
5480  026744  000167  000020          JMP     2$                      ;INSTRUCTION WASNT SUPPOSE TO TRAP
5481  026750  012604                  MOV     (SP)+,R4                ;REJOIN CODE
5482  026752  005726                  TST     (SP)+                   ;SEE IF PC = INSTRUCTION
5483  026754  022704  026702          CMP     #1$,R4                  ;CLEAN UP STACK
5484  026760  001403                  BEQ     2$                      ;
5485  026762  104000                  ERROR                           ;BRANCH IF GOOD COMPARE
5486  026764  000404                  .WORD   404                     ;ALL ERRORS TO TRAP TO EMT VECTOR
5487  026766  002013                  .WORD   FPPERR                  ;UNIQUE ERROR NUMBER
5488                                                                  ;ADDRESS OF ERROR MESSAGE
5489                                  ;                       ;PC WAS INCORRECT
5490                                  ;COMMON CODE FOR TRAP AND NO TRAP
5491  026770  170203          2$:     STFPS   R3                      ;SAVE FPS
5492  026772  012702  000200          MOV     #200,R2                 ;SET FPP TO DOUBLE
5493  026776  170102                  LDFPS   R2
5494  027000  012701  001126          MOV     #RECDST,R1              ;POINT TO RECEIVED DATA TABLE
5495                                  ;SAVE FRACTIONAL RESULT
5496  027004  174011                  STD     AC0,(R1)                ;SAVE AC0  RESULT
5497  027006  026503  000042          CMP     42(R5),R3               ;VERIFY STATUS
5498  027012  001403                  BEQ     3$                      ;BRANCH IF GOOD
5499  027014  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5500  027016  000405                  .WORD   405                     ;UNIQUE ERROR NUMBER
5501  027020  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5502                                                          ;BAD FPS
5503  027022  010504          3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
5504  027024  062704  000020          ADD     #20,R4
5505  027030  004767  153112  4$:     JSR     R7,DATVER                       ;VERIFY DATA
5506  027034  005767  152000          TST     COUNT
5507  027040  001403                  BEQ     5$                      ;BRANCH IF GOOD
5508  027042  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5509  027044  000406                  .WORD   406                     ;UNIQUE ERROR NUMBER
5510  027046  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5511                                                          ;BAD AC0
5512                                  ;SAVE INTEGER RESULT
5513  027050  174111          5$:     STD     AC1,(R1)                ;SAVE AC1 RESULT
5514  027052  010504                  MOV     R5,R4                   ;POINT TO EXPECTED
5515  027054  062704  000030          ADD     #30,R4
5516  027060  004767  153062          JSR     R7,DATVER               ;VERIFY DATA
5517  027064  005767  151750          TST     COUNT                   ;
5518  027070  001403                  BEQ     6$                      ;BRANCH IF GOOD
5519  027072  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5520  027074  000407                  .WORD   407                     ;UNIQUE ERROR NUMBER
5521  027076  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5522                                                          ;BAD AC1
5523  027100  005737  001042  6$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
5524  027104  001002                  BNE     7$                      ;BRANCH IF NEED TO CHECK
5525  027106  000165  000044          JMP     44(R5)                  ;RETURN FROM TEST
5526  027112  170301          7$:     STST    R1                      ;SAVE FEC
5527  027114  016504  000044          MOV     44(R5),R4               ;GET FEC
5528  027120  020401                  CMP     R4,R1                   ;VERIFY FEC
5529  027122  001403                  BEQ     8$                      ;BRANCH IF GOOD
5530  027124  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5531  027126  000410                  .WORD   410                     ;UNIQUE ERROR NUMBER
5532  027130  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5533                                                                  ;BAD FEC
5534  027132  000165  000046  8$:     JMP     46(R5)          ;RETURN FROM TEST
```

```
5535
5536  027136                                  ;
5537  027136                                  HOP15:
5538                                          MSFD:
5539                                          ;;*****************************************************************
5540                                          ;*TEST 67        TEST STCFD
5541  027136                                  ;;*****************************************************************
5542  027136  005267  151642                  TST67:  INC     @TESTN                  ;INCREMENT TEST NUMBER
5543                                          ;1/AC=0
5544  027142  004767  000170                          JSR     R7,SFDSUB               ;DO TEST
5545  027146  000177  000000  000000                  .WORD   0177,0,0,1              ;ACO
5546  027154  000001
5547  027156  000000  000000  000000                  .WORD   0,0,0,0         ;RESULT
5548  027164  000000
5549  027166  047557                                  .WORD   47557           ; TEST FPS
5550  027170  047544                                  .WORD   47544           ;RESULT FPS
5551                                          ;2/AC>0, TRUNCATE
5552  027172  004767  000140                          JSR     R7,SFDSUB       ;DO TEST
5553  027176  077577  177777  177777                  .WORD   77577,-1, 1, 1          ;ACO
5554  027204  177777
5555  027206  077577  177777  000000                  .WORD   77577,-1,0,0            ;RESULT
5556  027214  000000
5557  027216  007540                                  .WORD   7540            ; TEST FPS
5558  027220  007540                                  .WORD   7540            ;RESULT FPS
5559                                          ;3/AC<0, ROUND
5560  027222  004767  000110                          JSR     R7,SFDSUB               ;DO TEST
5561  027226  100377  177777  100000                  .WORD   100377,-1,100000,0              ;ACO
5562  027234  000000
5563  027236  100377  177777  000000                  .WORD   100377,-1,0,0   ;RESULT
5564  027244  000000
5565  027246  007517                                  .WORD   7517            ; TEST FPS
5566  027250  007510                                  .WORD   7510            ;RESULT FPS
5567                                          ;4/AC=-0
5568  027252  004767  000060                          JSR     R7,SFDSUB               ;DO TEST
5569  027256  100000  000000  000000                  .WORD   100000,0,0,0            ;ACO
5570  027264  000000
5571  027266  000000  000000  000000                  .WORD   0,0,0,0         ;RESULT
5572  027274  000000
5573  027276  007757                                  .WORD   7757            ; TEST FPS
5574  027300  007744                                  .WORD   7744            ;RESULT FPS
5575                                          ;5/AC<0
5576  027302  004767  000030                          JSR     R7,SFDSUB               ;DO TEST
5577  027306  125252  125252  125252                  .WORD   125252,125252,125252,125252             ;ACO
5578  027314  125252
5579  027316  125252  125252  000000                  .WORD   125252,125252,0,0               ;RESULT
5580  027324  000000
5581  027326  000000                                  .WORD   0               ; TEST FPS
5582  027330  000010                                  .WORD   10              ;RESULT FPS
5583                                          ;
5584
5585  027332  000167  000120                          JMP     HOP16                   ;GET OVER SUBROUTINE
5586                                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5587                                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5588                                          ;STCFD
5589                                          ;               AC0
5590                                          ;               RESULT
```

```
5591                                    ;               FPS BEFORE EXECUTION
5592                                    ;               FPS AFTER EXECUTION
5593                                    ;
5594                                    ;THERE CAN BE NO TRAPS WITH THE STCFD INSTRUCTION
5595                                    ;*X*X*X
```

```
5647  027466  004767  000220                  JSR     R7,SDFSUB               ;DO TEST
5648  027472  000177  000000  000000          .WORD   177,0,0,0               ;ACO
5649  027500  000000
5650  027502  000000  000000                  .WORD   0,0             ;RESULT
5651  027506  000200                          .WORD   200             ; TEST FPS
5652  027510  000204                          .WORD   204             ;RESULT FPS
5653                          ;2/AC=-0
5654  027512  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5655  027516  004767  000170                  JSR     R7,SDFSUB               ;DO TEST
5656  027522  100000  000300  000200          .WORD   100000,300,200,100              ;ACO
5657  027530  000100
5658  027532  000000  000000                  .WORD   0,0             ;RESULT
5659  027536  007777                          .WORD   7777            ; TEST FPS
5660  027540  007744                          .WORD   7744            ;RESULT FPS
5661                          ;3/AC>0, TRUNCATE
5662  027542  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5663  027546  004767  000140                  JSR     R7,SDFSUB               ;DO TEST
5664  027552  055555  055555  177777          .WORD   55555,55555, 1,-1               ;ACO
5665  027560  177777
5666  027562  055555  055555                  .WORD   55555,55555             ;RESULT
5667  027566  000240                          .WORD   240             ; TEST FPS
5668  027570  000240                          .WORD   240             ;RESULT FPS
5669                          ;4/AC<0, ROUND TO UNDEFINED VARIABLE
5670  027572  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
5671  027600  004767  000106                  JSR     R7,SDFSUB               ;DO TEST
5672  027604  077777  177777  100000          .WORD   77777,-1,100000,0               ;ACO
5673  027612  000000
5674  027614  000000  000000                  .WORD   0,0             ;RESULT
5675  027620  001200                          .WORD   1200            ; TEST FPS
5676  027622  101206                          .WORD   101206          ;RESULT FPS
5677                          ;5/AC<0, ROUND
5678  027624  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
5679  027630  004767  000056                  JSR     R7,SDFSUB               ;DO TEST
5680  027634  125252  125252  125252          .WORD   125252,125252,125252,125252             ;ACO
5681  027642  125252
5682  027644  125252  125253                  .WORD   125252,125253           ;RESULT
5683  027650  007700                          .WORD   7700            ; TEST FPS
5684  027652  007710                          .WORD   7710            ;RESULT FPS
5685                          ;6/ROUND TO UV, TRAPS DISABLED
5686  027654  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
5687  027662  004767  000024                  JSR     R7,SDFSUB               ;DO TEST
5688  027666  077777  177777  177777          .WORD   77777,-1, 1,0           ;ACO
5689  027674  000000
5690  027676  000000  000000                  .WORD   0,0             ;RESULT
5691  027702  006700                          .WORD   6700            ; TEST FPS
5692  027704  006706                          .WORD   6706            ;RESULT FPS
5693                          ;
5694
5695  027706  000167  000232                  JMP     MOP17           ;GET OVER SUBROUTINE
5696
5697                          ;
5698                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5699                          ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
5700                           STCDF
5701                          ;               ACO
5702                          ;               RESULT
```

```
                                ;               FPS BEFORE EXECUTION
                                ;               FPS AFTER EXECUTION
                                ;
                                ;A TRAP CAN ONLY OCCUR IF ROUNDING CAUSES OVERFLOW
                                ;*X*X*X
```

```
5759  030056  010504              3$:     MOV     R5,R4                   ;POINT TO EXPECTED DATA
5760  030060  062704  000010              ADD     #10,R4
5761  030064  004767  152040      4$:     JSR     R7,DATVFR                       ;VERIFY DATA
5762  030070  005767  150744              TST     COUNT
5763  030074  001403                      BEQ     5$                      ;BRANCH IF GOOD
5764  030076  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5765  030100  000420                      .WORD   420                     ;UNIQUE ERROR NUMBER
5766  030102  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5767                                                              ;BAD ACO
5768  030104  005737  001042      5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
5769  030110  001002                      BNE     7$                      ;BRANCH IF NEED TO CHECK
5770  030112  000165  000020              JMP     20(R5)                  ;RETURN FROM TEST
5771                              ;VERIFY FEC
5772  030116  012704  001106      7$:     MOV     #RECFEC,R4              ;POINT TO FEC AREA
5773  030122  170314                      STST    (R4)                    ;SAVE FEC
5774  030124  021427  000010              CMP     (R4),#10                        ;VERIFY FEC FOR OVERFLOW
5775  030130  001403                      BEQ     8$                      ;BRANCH IF GOOD
5776  030132  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5777  030134  000421                      .WORD   421                     ;UNIQUE ERROR NUMBER
5778  030136  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5779                                                                      ;BAD FEC
5780  030140  000165  000020      8$:     JMP     20(R5)          ;RETURN FROM TEST
5781                              ;
5782  030144                      MOP17:
5783  030144                      MSFDI:
5784                              ;;*********************************************************************
5785                              ;*TEST 71        TEST STCFD - USING ILLEGAL ACCUMULATOR
5786                              ;;*********************************************************************
5787  030144                      TST71:
5788  030144  005267  150634              INC     $TESTN                  ;INCREMENT TEST NUMBER
5789  030150  012701  040000              MOV     #40000,R1               ;DISABLE INTERRUPTS
5790  030154  170101                      LDFPS   R1                      ;
5791  030156  176006                      STCFD   AC0,AC6                 ;*TEST ILLEGAL INSTRUCTION
5792  030160  170202                      STFPS   R2                      ;SAVE STATUS
5793  030162  170303                      STST    R3                      ;SAVE FEC
5794  030164  022702  140000              CMP     #140000,R2              ;VERIFY FER SET
5795  030170  001403                      BEQ     1$                      ;BRANCH IF ERROR RECEIVED
5796  030172  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5797  030174  000422                      .WORD   422                     ;UNIQUE ERROR NUMBER
5798  030176  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5799                                                              ;FER BIT NOT SET ON ILLEGAL INST.
5800  030200  022703  000002      1$:     CMP     #2,R3                   ;VERIFY FEC = FLOATING OPCDOE ERROR
5801  030204  001403                      BEQ     2$                      ;BRANCH IF GOOD
5802  030206  104000                      ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5803  030210  000423                      .WORD   423                     ;UNIQUE ERROR NUMBER
5804  030212  002013                      .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5805                                                              ;FEC INCORRECT
5806  030214                      2$:
5807
5808                              ;
5809  030214                      MCLRD:
5810                              ;;*********************************************************************
5811                              ;*TEST 72        TEST CLRD
5812                              ;;*********************************************************************
5813  030214                      TST72:
5814  030214  005267  150564              INC     $TESTN                  ;INCREMENT TEST NUMBER
```

```
5815  030220  012701  001726          MOV     #TAB47,R1               ;POINT TO DATA
5816  030224  012704  000200          MOV     #200,R4                 ;SET FPP STATUS TO DOUBLE
5817  030230  170104                  LDFPS   R4
5818  030232  172411                  LDD     (R1),AC0                ;
5819  030234  012701  001126          MOV     #RECDST,R1              ;POINT TO DATA BUFFER
5820  030240  174011                  STD     AC0,(R1)                ;STORE GARBAGE
5821  030242  170411                  CLRD    (R1)                    ;CLEAR DATA BUFFER
5822  030244  012704  001256          MOV     #TAB6,R4                ;VERIFY BUFFER =0
5823  030250  004767  151672          JSR     R7,DATVER               ;
5824  030254  005767  150560          TST     COUNT                   ;
5825  030260  001403                  BEQ     1$                      ;BRANCH I RECDST = 0
5826  030262  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5827  030264  000424                  .WORD   424                     ;UNIQUE ERROR NUMBER
5828  030266  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5829                                                                ;RECDST NOT CLEARED
5830  030270  170202          1$:     STFPS   R2                      ;SAVE STATUS
5831  030272  020227  000204          CMP     R2,#204                 ;VERIFY STATUS
5832  030276  001403                  BEQ     2$                      ;BRANCH IF GOOD
5833  030300  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5834  030302  000425                  .WORD   425                     ;UNIQUE ERROR NUMBER
5835  030304  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5836                                                                ;BAD STATUS
5837  030306          2$:
5838
5839
5840  030306          MCLRI:
5841                  ;;*****************************************************************
5842                  ;*TEST 73        TEST CLRD, ILLEGAL ACCUMULATOR
5843                  ;;*****************************************************************
5844  030306          TST73:
5845  030306  005267  150472          INC     $TESTN                  ;INCREMENT TEST NUMBER
5846  030312  012704  040200          MOV     #40200,R4               ;DISABLE INTERRUPTS
5847  030316  170104                  LDFPS   R4                      ;LOAD STATUS
5848  030320  170406                  CLRD    R6                      ;*TEST INSTRUCTION WITH ILLEGAL ACC
5849  030322  170203                  STFPS   R3                      ;SAVE STATUS
5850  030324  170305                  STST    R5                      ;SAVE FEC
5851  030326  022703  140200          CMP     #140200,R3              ;VERIFY ERROR
5852  030332  001403                  BEQ     1$                      ;BRANCH IF FER SET
5853  030334  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5854  030336  000426                  .WORD   426                     ;UNIQUE ERROR NUMBER
5855  030340  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5856                                                                ;ERROR IN FPS
5857  030342  022705  000002          1$:     CMP     #2,R5           ;VERIFY FEC =2 OPCODE ERROR
5858  030346  001403                  BEQ     2$                      ;BRANCH IF GOOD
5859  030350  104000                  ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5860  030352  000427                  .WORD   427                     ;UNIQUE ERROR NUMBER
5861  030354  002013                  .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5862                                                                ;BAD FEC
5863  030356          2$:
5864
5865
5866  030356          MLS1:
5867                  ;;*****************************************************************
5868                  ;*TEST 74        TEST LDFPS, STFPS MODE 1
5869                  ;;*****************************************************************
5870  030356          TST74:
```

```
5871  030356  005267  150422                  INC     $TESTN                  ;INCREMENT TEST NUMBER
5872  030362  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5873  030366  012714  147757                  MOV     #147757,(R4)            ;SETUP EXPECTED STATUS
5874  030372  012701  001116                  MOV     #RECST,R1               ;SET BUFFER FOR RECEIVED STATUS
5875  030376  012737  030462  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
5876  030404  170114                          LDFPS   (R4)                    ;*TEST INSTRUCTION
5877  030406  170211                          STFPS   (R1)                    ;*TEST INSTRUCTION
5878  030410  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
5879  030414  001403                          BEQ     1$                      ;BRANCH IF GOOD
5880  030416  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5881  030420  000430                          .WORD   430                     ;UNIQUE ERROR NUMBER
5882  030422  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5883                                                                  ;
5884  030424  020127  001116          1$:     CMP     R1,#RECST               ;VERIFY R1
5885  030430  001403                          BEQ     2$                      ;BRANCH IF GOOD
5886  030432  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5887  030434  000431                          .WORD   431                     ;UNIQUE ERROR NUMBER
5888  030436  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5889                                                                  ;BAD R1
5890  030440  023727  001116  147757  2$:     CMP     @#RECST,#147757         ;VERIFY STATUS
5891  030446  001412                          BEQ     3$                      ;BRANCH F GOOD
5892  030450  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5893  030452  000432                          .WORD   432                     ;UNIQUE ERROR NUMBER
5894  030454  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5895                                                                  ;BAD STATUS\
5896  030456  000167  000012                  JMP     3$                      ;GET OVER TRAP
5897                                  ;UNEXPECTED TRAP
5898  030462  012600                  10$:     MOV     (SP)+,R0                        ;SAVE PC
5899  030464  012605                          MOV     (SP)+,R5                        ;SAVE PS
5900  030466  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5901  030470  000433                          .WORD   433                     ;UNIQUE ERROR NUMBER
5902  030472  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5903                                                                  ;UNEXPECTED TRAP
5904  030474                          3$:
5905
5906
5907  030474                          MLS2:
5908                                  ;;*******************************************************************
5909                                  ;*TEST 75        TEST LDFPS, STFPS MODE 2
5910                                  ;;*******************************************************************
5911  030474                          TST75:
5912  030474  005267  150304                  INC     $TESTN                  ;INCREMENT TEST NUMBER
5913  030500  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5914  030504  012714  145557                  MOV     #145557,(R4)            ;SETUP EXPECTED STATUS
5915  030510  012701  001116                  MOV     #RECST,R1               ;SET BUFFER FOR RECEIVED STATUS
5916  030514  012737  030600  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
5917  030522  170124                          LDFPS   (R4)+                   ;*TEST INSTRUCTION
5918  030524  170221                          STFPS   (R1)+                   ;*TEST INSTRUCTION
5919  030526  020427  001140                  CMP     R4,#TSTLOC+2            ;VERIFY R4
5920  030532  001403                          BEQ     1$                      ;BRANCH IF GOOD
5921  030534  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5922  030536  000434                          .WORD   434                     ;UNIQUE ERROR NUMBER
5923  030540  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5924                                                                  ;
5925  030542  020127  001120          1$:     CMP     R1,#RECST+2             ;VERIFY R1
5926  030546  001403                          BEQ     2$                      ;BRANCH IF GOOD
```

```
5927  030550  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5928  030552  000435                        .WORD   435                     ;UNIQUE ERROR NUMBER
5929  030554  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5930                                                                  ;BAD R1
5931  030556  023727  001116  145557  2$:   CMP     @#RECST,#145557         ;VERIFY STATUS
5932  030564  001412                        BEQ     3$                      ;BRANCH F GOOD
5933  030566  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5934  030570  000436                        .WORD   436                     ;UNIQUE ERROR NUMBER
5935  030572  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5936                                                                  ;BAD STATUS\
5937  030574  000167  000012                JMP     3$                      ;GET OVER TRAP
5938                                ;UNEXPECTED TRAP
5939  030600  012600                10$:    MOV     (SP)+,R0                        ;SAVE PC
5940  030602  012605                        MOV     (SP)+,R5                        ;SAVE PS
5941  030604  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5942  030606  000437                        .WORD   437                     ;UNIQUE ERROR NUMBER
5943  030610  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5944                                                                  ;UNEXPECTED TRAP
5945  030612                        3$:
5946
5947
5948  030612                        MLS3:
5949                                ;;*****************************************************************
5950                                ;*TEST 76        TEST LDFPS, STFPS MODE 3
5951                                ;;*****************************************************************
5952  030612                        TST76:
5953  030612  005267  150166                INC     $TESTN                  ;INCREMENT TEST NUMBER
5954  030616  012704  001136                MOV     #TSTLOC,R4              ;POINT R4 TO RAM
5955  030622  012737  001142  001136        MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC= DEFERRED ADDRESS
5956  030630  012737  147501  001142        MOV     #147501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
5957  030636  012701  001146                MOV     #TSTLOC+10,R1           ;R1 POINTS TO TSTLOC+10
5958  030642  012737  001116  001146        MOV     #RECST,@#TSTLOC+10      ;SET DEFERRED BUFFER FOR RECEIVED STATUS
5959  030650  012737  030734  000244        MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
5960  030656  170134                        LDFPS   @(R4)+                  ;*TEST INSTRUCTION
5961  030660  170231                        STFPS   @(R1)+                  ;*TEST INSTRUCTION
5962  030662  020427  001140                CMP     R4,#TSTLOC+2            ;VERIFY R4
5963  030666  001403                        BEQ     1$                      ;BRANCH IF GOOD
5964  030670  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5965  030672  000440                        .WORD   440                     ;UNIQUE ERROR NUMBER
5966  030674  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5967                                                                  ;
5968  030676  020127  001150          1$:   CMP     R1,#TSTLOC+12           ;VERIFY R1
5969  030702  001403                        BEQ     2$                      ;BRANCH IF GOOD
5970  030704  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5971  030706  000441                        .WORD   441                     ;UNIQUE ERROR NUMBER
5972  030710  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5973                                                                  ;BAD R1
5974  030712  023727  001116  147501  2$:   CMP     @#RECST,#147501         ;VERIFY STATUS
5975  030720  001412                        BEQ     3$                      ;BRANCH F GOOD
5976  030722  104000                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5977  030724  000442                        .WORD   442                     ;UNIQUE ERROR NUMBER
5978  030726  002013                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5979                                                                  ;BAD STATUS\
5980  030730  000167  000012                JMP     3$                      ;GET OVER TRAP
5981                                ;UNEXPECTED TRAP
5982  030734  012600                10$:    MOV     (SP)+,R0                        ;SAVE PC
```

```
5983  030736  012605                          MOV     (SP)+,R5                ;SAVE PS
5984  030740  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
5985  030742  000443                          .WORD   443                     ;UNIQUE ERROR NUMBER
5986  030744  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
5987                                                                        ;UNEXPECTED TRAP
5988  030746                          3$:
5989
5990
5991  030746                          MLS4:
5992                                  ;;*************************************************************************
5993                                  ;*TEST 77        TEST LDFPS, STFPS MODE 4
5994                                  ;;*************************************************************************
5995  030746                          TST77:
5996  030746  005267  150032                  INC     $TESTN                  ;INCREMENT TEST NUMBER
5997  030752  012704  001140                  MOV     #TSTLOC+2,R4            ;POINT R4 TO RAM
5998  030756  012737  147757  001136          MOV     #147757,@#TSTLOC        ;TSTLOC= STATUS ADDRESS
5999  030764  012701  001120                  MOV     #RECST+2,R1             ;SET BUFFER FOR RECEIVED STATUS
6000  030770  012737  031054  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6001  030776  170144                          LDFPS   -(R4)                   ;*TEST INSTRUCTION
6002  031000  170241                          STFPS   -(R1)                   ;*TEST INSTRUCTION
6003  031002  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
6004  031006  001403                          BEQ     1$                      ;BRANCH IF GOOD
6005  031010  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6006  031012  000444                          .WORD   444                     ;UNIQUE ERROR NUMBER
6007  031014  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6008                                                                        ;
6009  031016  020127  001116          1$:     CMP     R1,#RECST               ;VERIFY R1
6010  031022  001403                          BEQ     2$                      ;BRANCH IF GOOD
6011  031024  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6012  031026  000445                          .WORD   445                     ;UNIQUE ERROR NUMBER
6013  031030  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6014                                                                        ;BAD R1
6015  031032  023727  001116  147757  2$:     CMP     @#RECST,#147757         ;VERIFY STATUS
6016  031040  001412                          BEQ     3$                      ;BRANCH F GOOD
6017  031042  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6018  031044  000446                          .WORD   446                     ;UNIQUE ERROR NUMBER
6019  031046  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6020                                                                        ;BAD STATUS\
6021  031050  000167  000012                  JMP     3$                      ;GET OVER TRAP
6022                                  ;UNEXPECTED TRAP
6023  031054  012600                  10$:    MOV     (SP)+,R0                        ;SAVE PC
6024  031056  012605                          MOV     (SP)+,R5                        ;SAVE PS
6025  031060  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6026  031062  000447                          .WORD   447                     ;UNIQUE ERROR NUMBER
6027  031064  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6028                                                                        ;UNEXPECTED TRAP
6029  031066                          3$:
6030
6031
6032  031066                          MLS5:
6033                                  ;;*************************************************************************
6034                                  ;*TEST 100       TEST LDFPS, STFPS MODE 5
6035                                  ;;*************************************************************************
6036  031066                          TST100:
6037  031066  005267  147712                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6038  031072  012704  001140                  MOV     #TSTLOC+2,R4            ;POINT R4 TO RAM
```

```
6039  031076  012737  001142  001136          MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC= DEFERRED ADDRESS
6040  031104  012737  147501  001142          MOV     #147501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
6041  031112  012701  001150                  MOV     #TSTLOC+12,R1           ;R1 POINTS TO 412
6042  031116  012737  001116  001146          MOV     #RECST,@#TSTLOC+10      ;SET DEFERRED BUFFER FOR RECEIVED STATUS
6043  031124  012737  031210  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6044  031132  170154                          LDFPS   @-(R4)                  ;*TEST INSTRUCTION
6045  031134  170251                          STFPS   @-(R1)                  ;*TEST INSTRUCTION
6046  031136  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
6047  031142  001403                          BEQ     1$                      ;BRANCH IF GOOD
6048  031144  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6049  031146  000450                          .WORD   450                     ;UNIQUE ERROR NUMBER
6050  031150  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6051                                                                  ;
6052  031152  020127  001146          1$:     CMP     R1,#TSTLOC+10           ;VERIFY R1
6053  031156  001403                          BEQ     2$                      ;BRANCH IF GOOD
6054  031160  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6055  031162  000451                          .WORD   451                     ;UNIQUE ERROR NUMBER
6056  031164  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6057                                                                  ;BAD R1
6058  031166  023727  001116  147501  2$:     CMP     @#RECST,#147501         ;VERIFY STATUS
6059  031174  001412                          BEQ     3$                      ;BRANCH F GOOD
6060  031176  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6061  031200  000452                          .WORD   452                     ;UNIQUE ERROR NUMBER
6062  031202  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6063                                                                  ;BAD STATUS\
6064  031204  000167  000012                  JMP     3$                      ;GET OVER TRAP
6065                                  ;UNEXPECTED TRAP
6066  031210  012600                  10$:     MOV     (SP)+,R0                ;SAVE PC
6067  031212  012605                          MOV     (SP)+,R5                ;SAVE PS
6068  031214  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6069  031216  000453                          .WORD   453                     ;UNIQUE ERROR NUMBER
6070  031220  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6071                                                                  ;UNEXPECTED TRAP
6072  031222                          3$:
6073
6074
6075  031222                          MLS6:
6076                                  ;;*********************************************************************
6077                                  ;*TEST 101       TEST LDFPS, STFPS MODE 6
6078                                  ;;*********************************************************************
6079  031222                          TST101:
6080  031222  005267  147556                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6081  031226  012704  001136                  MOV     #TSTLOC,R4              ;POINT R4 TO RAM
6082  031232  012737  140001  001142          MOV     #140001,@#TSTLOC+4      ;SETUP EXPECTED STATUS
6083  031240  012701  001246                  MOV     #TSTLOC+110,R1          ;R1 WILL POINT TO TESTLOC+10
6084  031244  012737  031334  000244          MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
6085  031252  170164  000004                  LDFPS   4(R4)                   ;*TEST INSTRUCTION
6086  031256  170261  177700                  STFPS   -100(R1)                        ;*TEST INSTRUCTION
6087  031262  020427  001136                  CMP     R4,#TSTLOC              ;VERIFY R4
6088  031266  001403                          BEQ     1$                      ;BRANCH IF GOOD
6089  031270  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6090  031272  000454                          .WORD   454                     ;UNIQUE ERROR NUMBER
6091  031274  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6092                                                                  ;
6093  031276  020127  001246          1$:     CMP     R1,#TSTLOC+110          ;VERIFY R1
6094  031302  001403                          BEQ     2$                      ;BRANCH IF GOOD
```

```
                                        ERROR                                   ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   455                             ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                          ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD R1
                                2$:     CMP     @#TSTLOC+10,#140001     ;VERIFY STATUS
                                        BEQ     3$                      ;BRANCH F GOOD
                                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   456                     ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD STATUS\
                                        JMP     3$                      ;GET OVER TRAP
                                ;UNEXPECTED TRAP
                                10$:    MOV     (SP)+,R0                        ;SAVE PC
                                        MOV     (SP)+,R5                        ;SAVE PS
                                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   457                     ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;UNEXPECTED TRAP
                                3$:


                                MLS7:
                                ;;**************************************************************
                                ;*TEST 102      TEST LDFPS, STFPS MODE 7
                                ;;*****.**********************************************************
                                TST102:
                                        INC     $TESTN                  ;INCREMENT TEST NUMBER
                                        MOV     #TSTLOC+100,R4          ;POINT R4 TO RAM
                                        MOV     #TSTLOC+4,@#TSTLOC      ;TSTLOC+ DEFERRED ADDRESS
                                        MOV     #145501,@#TSTLOC+4      ;SETUP EXPECTED STATUS
                                        MOV     #TSTLOC-70,R1           ;R1 POINTS TO TSTLOC+10
                                        MOV     #TSTLOC+10,@#TSTLOC+2   ;
                                        MOV     #10$,@#FPVEC            ;SETUP TRAP VECTOR
                                        LDFPS   @-100(R4)                       ;*TEST INSTRUCTION
                                        STFPS   @72(R1)                 ;*TEST INSTRUCTION
                                        CMP     R4,#TSTLOC+100          ;VERIFY R4
                                        BEQ     1$                      ;BRANCH IF GOOD
                                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   460                     ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;
                                1$:     CMP     R1,#TSTLOC-70           ;VERIFY R1
                                        BEQ     2$                      ;BRANCH IF GOOD
                                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   461                     ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD R1
                                2$:     CMP     @#TSTLOC+10,#145501     ;VERIFY STATUS
                                        BEQ     3$                      ;BRANCH F GOOD
                                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                                        .WORD   462                     ;UNIQUE ERROR NUMBER
                                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD STATUS\
                                        JMP     3$                      ;GET OVER TRAP
                                ;UNEXPECTED TRAP
                                10$:    MOV     (SP)+,R0                        ;SAVE PC
```

```
6151  031476  012605                          MOV     (SP)+,R5                ;SAVE PS
6152  031500  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6153  031502  000463                          .WORD   463                     ;UNIQUE ERROR NUMBER
6154  031504  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6155                                                                        ;UNEXPECTED TRAP
6156  031506                          3$:
6157
6158
6159  031506                          MLDC2:
6160                                  ;;*************************************************************************
6161                                  ;*TEST 103       TEST LDCLD MODE 27
6162                                  ;;*************************************************************************
6163  031506                          TST103:
6164  031506  005267  147272                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6165  031512  005001                          CLR     R1                      ;INIT R1
6166  031514  012704  007700                  MOV     #7700,R4                ;FPS=DOUBLE, LONG
6167  031520  170104                          LDFPS   R4                      ;
6168  031522  012737  031562  000244          MOV     #10$,@#FPVEC            ;SETUP WILD TRAP
6169  031530  177027                          LDCLD   (R7)+,AC0               ;*TEST INSTRUCTION
6170  031532  005201                          INC     R1                      ;
6171  031534  005201                          INC     R1                      ;
6172  031536  005201                          INC     R1                      ;
6173  031540  005201                          INC     R1                      ;
6174  031542  020127  000003                  CMP     R1,#3                   ;VERIFY
6175  031546  001412                          BEQ     1$                      ;BRANCH IF GOOD
6176  031550  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6177  031552  000464                          .WORD   464                     ;UNIQUE ERROR NUMBER
6178  031554  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6179                                                                        ;INSTRUCTION FAILED
6180  031556  000167  000012                  JMP     1$                      ;JUMP OVER WILD TRAP
6181  031562  012600                  10$:    MOV     (SP)+,R0                ;SAVE PC
6182  031564  012605                          MOV     (SP)+,R5                ;SAVE PS
6183  031566  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6184  031570  000465                          .WORD   465                     ;UNIQUE ERROR NUMBER
6185  031572  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6186                                                                        ;WILD TRAP ON INSTRUCTION
6187  031574  012704  001266          1$:     MOV     #TAB6A,R4               ;POINT TO EXPECTED DATA
6188  031600  012701  001126                  MOV     #RECDST,R1              ;POINT TO DATA BUFFER
6189  031604  174011                          STD     AC0,(R1)                ;VERIFY DATA
6190  031606  004767  150334                  JSR     R7,DATVER               ;
6191  031612  005767  147222                  TST     COUNT
6192  031616  001403                          BEQ     2$                      ;BRANCH IF GOOD DATA
6193  031620  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6194  031622  000466                          .WORD   466                     ;UNIQUE ERROR NUMBER
6195  031624  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6196                                                                        ;BAD DATA
6197  031626                          2$:
6198
6199
6200
6201  031626                          MLCF:
6202                                  ;;*************************************************************************
6203                                  ;*TEST 104       TEST LDCIF, LDCLF
6204                                  ;;*************************************************************************
6205  031626                          TST104:
6206  031626  005267  147152                  INC     $TESTN                  ;INCREMENT TEST NUMBER
```

```
6207
6208  031632  004767  000500          ;1/INT=0
6209  031636  000000  000000                JSR     R7,LCFSUB               ;DO TEST
6210  031642  000000  000000                .WORD   0,0             ;FSRC
6211  031646  000000                      .WORD   0,0             ;RESULT
6212  031650  000004                      .WORD   0               ; TEST FPS
6213                                      .WORD   4               ;RESULT FPS
6214  031652  004767  000460          ;2/INT=0,-1
6215  031656  000000  177777                JSR     R7,LCFSUB               ;DO TEST
6216  031662  000000  000000                .WORD   0,-1            ;FSRC
6217  031666  007440                      .WORD   0,0             ;RESULT
6218  031670  007444                      .WORD   7440            ; TEST FPS
6219                                      .WORD   7444            ;RESULT FPS
6220  031672  004767  000440          ;3/LONG=0
6221  031676  000000  000000                JSR     R7,LCFSUB               ;DO TEST
6222  031702  000000  000000                .WORD   0,0             ;FSRC
6223  031706  000100                      .WORD   0,0             ;RESULT
6224  031710  000104                      .WORD   100             ; TEST FPS
6225                                      .WORD   104             ;RESULT FPS
6226  031712  004767  000420          ;4/INT=40000
6227  031716  040000  000000                JSR     R7,LCFSUB               ;DO TEST
6228  031722  043600  000000                .WORD   40000,0         ;FSRC
6229  031726  000017                      .WORD   43600,0         ;RESULT
6230  031730  000000                      .WORD   17              ; TEST FPS
6231                                      .WORD   0               ;RESULT FPS
6232  031732  004767  000400          ;5/LONG=1
6233  031736  000000  000001                JSR     R7,LCFSUB               ;DO TEST
6234  031742  040200  000000                .WORD   0,1             ;FSRC
6235  031746  000117                      .WORD   40200,0         ;RESULT
6236  031750  000100                      .WORD   117             ; TEST FPS
6237                                      .WORD   100             ;RESULT FPS
6238  031752  004767  000360          ;6/INT=PATTERN
6239  031756  000252  025252                JSR     R7,LCFSUB               ;DO TEST
6240  031762  042052  000000                .WORD   252,25252       ;FSRC
6241  031766  000000                      .WORD   42052,0         ;RESULT
6242  031770  000000                      .WORD   0               ; TEST FPS
6243                                      .WORD   0               ;RESULT FPS
6244  031772  004767  000340          ;7/INT=-40000
6245  031776  140000  000000                JSR     R7,LCFSUB               ;DO TEST
6246  032002  143600  000000                .WORD   -40000,0        ;FSRC
6247  032006  000007                      .WORD   143600,0        ;RESULT
6248  032010  000010                      .WORD   7               ; TEST FPS
6249                                      .WORD   10              ;RESULT FPS
6250  032012  004767  000320          ;8/INT=-1
6251  032016  177777  000000                JSR     R7,LCFSUB               ;DO TEST
6252  032022  140200  000000                .WORD   -1,0            ;FSRC
6253  032026  000007                      .WORD   140200,0        ;RESULT
6254  032030  000010                      .WORD   7               ; TEST FPS
6255                                      .WORD   10              ;RESULT FPS
6256  032032  004767  000300          ;9/INT=PATTERN
6257  032036  125252  125252                JSR     R7,LCFSUB               ;DO TEST
6258  032042  143652  126000                .WORD   125252,125252           ;FSRC
6259  032046  000007                      .WORD   143652,126000           ;RESULT
6260  032050  000010                      .WORD   7               ; TEST FPS
6261                                      .WORD   10              ;RESULT FPS
6262  032052  004767  000260          ;10/LONG=40000
                                        JSR     R7,LCFSUB               ;DO TEST
```

```
032056  040000  000000                  .WORD   40000,0         ;FSRC
032062  047600  000000                  .WORD   47600,0         ;RESULT
032066  000117                          .WORD   117             ; TEST FPS
032070  000100                          .WORD   100             ;RESULT FPS
                                ;11/LONG=1
032072  004767  000240                  JSR     R7,LCFSUB               ;DO TEST
032076  000000  000001                  .WORD   0,1             ;FSRC
032102  040200  000000                  .WORD   40200,0         ;RESULT
032106  007557                          .WORD   7557            ; TEST FPS
032110  007540                          .WORD   7540            ;RESULT FPS
                                ;12/LONG=PATTERN
032112  004767  000220                  JSR     R7,LCFSUB               ;DO TEST
032116  000000  000252                  .WORD   0,252           ;FSRC
032122  042052  000000                  .WORD   42052,0         ;RESULT
032126  007557                          .WORD   7557            ; TEST FPS
032130  007540                          .WORD   7540            ;RESULT FPS
                                ;13/LONG = -40000
032132  004767  000200                  JSR     R7,LCFSUB               ;DO TEST
032136  140000  000000                  .WORD   -40000,0                ;FSRC
032142  147600  000000                  .WORD   147600,0                ;RESULT
032146  000107                          .WORD   107             ; TEST FPS
032150  000110                          .WORD   110             ;RESULT FPS
                                ;14/LONG=-1
032152  004767  000160                  JSR     R7,LCFSUB               ;DO TEST
032156  177777  177777                  .WORD   -1,-1           ;FSRC
032162  140200  000000                  .WORD   140200,0                ;RESULT
032166  007500                          .WORD   7500            ; TEST FPS
032170  007510                          .WORD   7510            ;RESULT FPS
                                ;15/LONG=PATTERN
032172  004767  000140                  JSR     R7,LCFSUB               ;DO TEST
032176  125252  125252                  .WORD   125252,125252           ;FSRC
032202  147652  125253                  .WORD   147652,125253           ;RESULT
032206  000105                          .WORD   105             ; TEST FPS
032210  000110                          .WORD   110             ;RESULT FPS
                                ;16/LONG=77777,177500
032212  004767  000120                  JSR     R7,LCFSUB               ;DO TEST
032216  077777  177500                  .WORD   77777,177500            ;FSRC
032222  047777  177777                  .WORD   47777,177777            ;RESULT
032226  000117                          .WORD   117             ; TEST FPS
032230  000100                          .WORD   100             ;RESULT FPS
                                ;17/LONG=40000,100
032232  004767  000100                  JSR     R7,LCFSUB               ;DO TEST
032236  040000  000100                  .WORD   40000,100               ;FSRC
032242  047600  000001                  .WORD   47600,1         ;RESULT
032246  007502                          .WORD   7502            ; TEST FPS
032250  007500                          .WORD   7500            ;RESULT FPS
                                ;18/LONG=40000,100 - TRUNCATE
032252  004767  000060                  JSR     R7,LCFSUB               ;DO TEST
032256  040000  000100                  .WORD   40000,100               ;FSRC
032262  047600  000000                  .WORD   47600,0         ;RESULT
032266  007557                          .WORD   7557            ; TEST FPS
032270  007540                          .WORD   7540            ;RESULT FPS
                                ;19/INT= MOST NEGATIVE
032272  004767  000040                  JSR     R7,LCFSUB               ;DO TEST
032276  100000  000000                  .WORD   100000,0                ;FSRC
032302  144000  000000                  .WORD   144000,0                ;RESULT
```

```
6319  032306  000007                        .WORD   7               ; TEST FPS
6320  032310  000010                        .WORD   10              ;RESULT FPS
6321                                  ;20/LONG= MOST NEGATIVE
6322  032312  004767  000020                JSR     R7,LCFSUB               ;DO TEST
6323  032316  100000  000000                .WORD   100000,0                ;FSRC
6324  032322  150000  000000                .WORD   150000,0                ;RESULT
6325  032326  000107                        .WORD   107             ; TEST FPS
6326  032330  000110                        .WORD   110             ;RESULT FPS
6327                                  ;
6328
6329  032332  000167  000126                JMP     HOP18           ;GET OVER SUBROUTINE
6330                                  ;
6331                                  ;
6332                                  ;*X*X*X
```

```
6375  032442  000162  000014          5$:     JMP     14(R2)                  ;RETURN FROM TEST
6376                                  ;
6377                                  ;INSTRUCTION TRAPPED
6378  032446  012600                  50$:    MOV     (SP)+,R0                ;SAVE PC
6379  032450  012605                          MOV     (SP)+,R5                ;SAVE PS
6380  032452  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
6381  032454  000471                          .WORD   471                     ;UNIQUE ERROR NUMBER
6382  032456  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
6383                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
6384  032460  000167  177756                  JMP     5$                      ;CONTINUE
6385  032464                        HOP18:
6386
6387  032464                        MLCD:
6388                                ;;*****************************************************************
6389                                ;*TEST 105       TEST LDCID, LDCLD
6390                                ;;*****************************************************************
6391  032464                        TS^105:
6392  032464  005267  146314                  INC     $TESTN                  ;INCREMENT TEST NUMBER
6393                                 1/LONG=0
6394  032470  004767  000264                  JSR     R7,LCDSUB               ;DO TEST
6395  032474  000000  000000                  .WORD   0,0                     ;FSRC
6396  032500  000000  000000  000000          .WORD   0,0,0,0                 ;RESULT
6397  032506  000000
6398  032510  007313                          .WORD   7313                    ; TEST FPS
6399  032512  007304                          .WORD   7304                    ;RESULT FPS
6400                                ;2/INT=0
6401  032514  004767  000240                  JSR     R7,LCDSUB               ;DO TEST
6402  032520  000000  000001                  .WORD   0,1                     ;FSRC
6403  032524  040200  000000  000000          .WORD   40200,0,0,0             ;RESULT
6404  032532  000000
6405  032534  007757                          .WORD   7757                    ; TEST FPS
6406  032536  007740                          .WORD   7740                    ;RESULT FPS
6407
6408  032540  004767  000214                ;3/INT=40000
6409  032544  040000  177777                  JSR     R7,LCDSUB               ;DO TEST
6410  032550  043600  000000  000000          .WORD   40000,-1                ;FSRC
6411  032556  000000                          .WORD   43600,0,0,0             ;RESULT
6412  032560  007617                          .WORD   7617                    ; TEST FPS
6413  032562  007600                          .WORD   7600                    ;RESULT FPS
6414                                ;4/INT=-40000
6415  032564  004767  000170                  JSR     R7,LCDSUB               ;DO TEST
6416  032570  140000  177777                  .WORD   -40000,-1               ;FSRC
6417  032574  143600  000000  000000          .WORD   143600,0,0,0            ;RESULT
6418  032602  000000
6419  032604  007600                          .WORD   7600                    ; TEST FPS
6420  032606  007610                          .WORD   7610                    ;RESULT FPS
6421                                ;5/LONG=40000
6422  032610  004767  000144                  JSR     R7,LCDSUB               ;DO TEST
6423  032614  040000  000000                  .WORD   40000,0                 ;FSRC
6424  032620  047600  000000  000000          .WORD   47600,0,0,0             ;RESULT
6425  032626  000000
6426  032630  007757                          .WORD   7757                    ; TEST FPS
6427  032632  007740                          .WORD   7740                    ;RESULT FPS
6428                                ;6/LONG=1
6429  032634  004767  000120                  JSR     R7,LCDSUB               ;DO TEST
6430  032640  000000  000001                  .WORD   0,1                     ;FSRC
```

```
6431  032644  040200  000000  000000          .WORD   40200,0,0,0             ;RESULT
6432  032652  000000
6433  032654  000300                          .WORD   300             ; TEST FPS
6434  032656  000300                          .WORD   300             ;RESULT FPS
6435                                  ;7/LONG=-2
6436  032660  004767  000074                  JSR     R7,LCDSUB               ;DO TEST
6437  032664  177777  177776                  .WORD   -1,-2           ;FSRC
6438  032670  140400  000000  000000          .WORD   140400,0,0,0            ;RESULT
6439  032676  000000
6440  032700  007300                          .WORD   7300            ; TEST FPS
6441  032702  007310                          .WORD   7310            ;RESULT FPS
6442                                  ;8/INT=PATTERN
6443  032704  004767  000050                  JSR     R7,LCDSUB               ;DO TEST
6444  032710  123456  176543                  .WORD   123456,176543           ;FSRC
6445  032714  143661  122000  000000          .WORD   143661,122000,0,0               ;RESULT
6446  032722  000000
6447  032724  000200                          .WORD   200             ; TEST FPS
6448  032726  000210                          .WORD   210             ;RESULT FPS
6449                                  ;9/LONG=PATTERN
6450  032730  004767  000024                  JSR     R7,LCDSUB               ;DO TEST
6451  032734  125252  125252                  .WORD   125252,125252           ;FSRC
6452  032740  147652  125252  126000          .WORD   147652,125252,126000,0          ;RESULT
6453  032746  000000
6454  032750  000300                          .WORD   300             ; TEST FPS
6455  032752  000310                          .WORD   310             ;RESULT FPS
6456                                  ;
6457
6458                                  ;
6459  032754  000167  000126                  JMP     MOP19           ;GET OVER SUBROUTINE
6460                                  ;
6461                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6462                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6463                                  ;LDCID, LDCLD
6464                                  ;
6465                                  ;               FSRC
6466                                  ;               RESULT
6467                                  ;               FPS BEFORE EXECUTION
6468                                  ;               FPS AFTER EXECUTION
6469                                  ;
6470                                  ;NO TRAP CAN OCCUR
6471                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6472                                  ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
6473                                  ;
6474  032760  012602                  LCDSUB: MOV     (SP)+,R2                ; RETURN ADDRESS TO USE AS POINTER
6475  032762  012737  033070  000244          MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
6476  032770  012701  001126                  MOV     #RECOST,R1              ;POINT TO RESULT AREA
6477  032774  016200  000014                  MOV     14(R2),R0               ;GET TEST FPS
6478  033000  170100                          LDFPS   R0                      ;LOAD TEST FPS
6479  033002  010204                          MOV     R2,R4                   ;POINT TO TEST DATA
6480                                  ;
6481  033004  177014                  40$:    LDCID   (R4),AC0                ;*TEST INSTRUCTION (ACCORDING TO MODE)
6482                                  ;
6483                                  ;VERIFY STATUS
6484  033006  170203                  2$:     STFPS   R3                      ;SAVE FPS
6485  033010  012700  000200                  MOV     #200,R0                 ;SET FPP STATUS TO DOUBLE
6486  033014  170100                          LDFPS   R0                      ;
```

```
6487  033016  174011                          STD     AC0,(R1)        ;SAVE TEST RESULT INTO RECDST
6488  033020  016200  000016                  MOV     16(R2),R0               ;GET EXPECTED STATUS
6489  033024  020003                          CMP     R0,R3           ;VERIFY STATUS
6490  033026  001403                          BEQ     3$              ;BRANCH IF GOOD
6491  033030  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6492  033032  000472                          .WORD   472             ;UNIQUE ERROR NUMBER
6493  033034  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6494                                  ;BAD FPS
6495  033036  010204                  3$:     MOV     R2,R4           ;POINT TO EXPECTED DATA
6496  033040  062704  000004                  ADD     #4,R4
6497  033044  004767  147076          4$:     JSR     R7,DATVER               ;VERIFY DATA
6498  033050  005767  145764                  TST     COUNT
6499  033054  001403                          BEQ     5$              ;BRANCH IF GOOD
6500  033056  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6501  033060  000473                          .WORD   473             ;UNIQUE ERROR NUMBER
6502  033062  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6503                                  ;BAD AC0
6504  033064  000162  000020          5$:     JMP     20(R2)          ;RETURN FROM TEST
6505                                  ;
6506                                  ;INSTRUCTION TRAPPED
6507  033070  012600                  50$:    MOV     (SP)+,R0        ;SAVE PC
6508  033072  012605                          MOV     (SP)+,R5        ;SAVE PS
6509  033074  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
6510  033076  000474                          .WORD   474             ;UNIQUE ERROR NUMBER
6511  033100  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6512                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
6513  033102  000167  177756                  JMP     5$              ;CONTINUE
6514                                  ;
6515  033106                          MOP19:
6516
6517  033106                          MLXP:
6518                                  ;;*****************************************************************
6519                                  ;*TEST 106      EST LDEXP DOUBLE
6520                                  ;;*****************************************************************
6521  033106
6522  033106  005267  145672          TST106: INC     $TESTN                  ;INCREMENT TEST NUMBER
6523                                  ;1/EXP=10 - AC=NEG
6524  033112  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPTS
6525  033116  004767  001140                  JSR     R7,LXPSUB               ;DO TEST
6526  033122  123456  067012  025252          .WORD   123456,67012,25252,171717       ;AC0
6527  033130  171717
6528  033132  000010                          .WORD   10                      ;EXP
6529  033134  142056  067012  025252          .WORD   142056,67012,25252,171717               ;RESULT
6530  033142  171717
6531  033144  007757                          .WORD   7757            ; TEST FPS
6532  033146  007750                          .WORD   7750            ;RESULT FPS
6533                                  ;2/EXP=177 - AC0=POS
6534  033150  005037  001042                  CLR     @#FLAG                  ;NO INTERRUPTS
6535  033154  004767  001102                  JSR     R7,LXPSUB               ;DO TEST
6536  033160  023456  070123  100000          .WORD   23456,70123,100000,1            ;AC0
6537  033166  000001
6538  033170  000177                          .WORD   177             ;EXP
6539  033172  077656  070123  100000          .WORD   77656,70123,100000,1            ;RESULT
6540  033200  000001
6541  033202  007700                          .WORD   7700            ; TEST FPS
6542  033204  007700                          .WORD   7700            ;RESULT FPS
```

```
6543                                    ;3/EXP=56
6544  033206  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6545  033212  004767  001044                JSR     R7,LXPSUB               ;DO TEST
6546  033216  055555  044444  033333        .WORD   55555,44444,33333,22222         ;ACO
6547  033224  022222
6548  033226  000056                        .WORD   56              ;EXP
6549  033230  053555  044444  033333        .WORD   53555,44444,33333,22222 ;RESULT
6550  033236  022222
6551  033240  007757                        .WORD   7757            ; TEST FPS
6552  033242  007740                        .WORD   7740            ;RESULT FPS
6553                                    ;4/EXP=-151. ACO=UV
6554  033244  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6555  033250  004767  001006                JSR     R7,LXPSUB               ;DO TEST
6556  033254  100077  177777  177777        .WORD   100077,-1. 1,-2         ;ACO
6557  033262  177776
6558  033264  177623                        .WORD   -155            ;EXP
6559  033266  104677  177777  177777        .WORD   104677,-1,-1,-2         ;RESULT
6560  033274  177776
6561  033276  007757                        .WORD   7757            ; TEST FPS
6562  033300  007750                        .WORD   7750            ;RESULT FPS
6563                                    ;5/EXP= 177
6564  033302  005037  001042                CLR     @#FLAG                  ;NO INTERRUPTS
6565  033306  004767  000750                JSR     R7,LXPSUB               ;DO TEST
6566  033312  000177  177777  177777        .WORD   177,-1,-1,-2            ;ACO
6567  033320  177776
6568  033322  177601                        .WORD   -177            ;EXP
6569  033324  000377  177777  177777        .WORD   377,-1,-1,-2            ;RESULT
6570  033332  177776
6571  033334  007700                        .WORD   7700            ; TEST FPS
6572  033336  007700                        .WORD   7700            ;RESULT FPS
6573                                    ;6/EXP=-200. UNDERFLOW
6574  033340  012737  000001  001042        MOV     #1,@#FLAG               ; INTERRUPTS
6575  033346  004767  000710                JSR     R7,LXPSUB               ;DO TEST
6576  033352  030131  032334  035363        .WORD   30131,32334,35363,73031         ;ACO
6577  033360  073031
6578  033362  177600                        .WORD   -200            ;EXP
6579  033364  000131  032334  035363        .WORD   131,32334,35363,73031           ;RESULT
6580  033372  073031
6581  033374  007740                        .WORD   7740            ; TEST FPS
6582  033376  107744                        .WORD   107744          ;RESULT FPS
6583  033400  000012                        .WORD   12              ;EC
6584                                    ;7/EXP=LARGEST NEGATIVE
6585  033402  012737  000001  001042        MOV     #1,@#FLAG               ;EXPECT  INTERRUPTS
6586  033410  004767  000646                JSR     R7,LXPSUB               ;DO TEST
6587  033414  000000  000123  000456        .WORD   0,123,456,1             ;ACO
6588  033422  000001
6589  033424  100000                        .WORD   100000          ;EXP
6590  033426  040000  000123  000456        .WORD   40000,123,456,1         ;RESULT
6591  033434  000001
6592  033436  002200                        .WORD   2200            ; TEST FPS
6593  033440  102200                        .WORD   102200          ;RESULT FPS
6594  033442  000012                        .WORD   12              ;FEC
6595                                    ;8/EXP=-200. NEG. ACO
6596  033444  012737  000001  001042        MOV     #1,@#FLAG               ; INTERRUPTS
6597  033452  004767  000604                JSR     R7,LXPSUB               ;DO TEST
6598  033456  111111  100000  100000        .WORD   111111,100000,100000,-1         ;ACO
```

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6599  033464  177777
6600  033466  177600                          .WORD    200                ;EXP
6601  033470  100111  100000  100000          .WORD   100111,100000,100000, 1          ;RESULT
6602  033476  177777
6603  033500  002217                          .WORD   2217               ; TEST FPS
6604  033502  102214                          .WORD   102214             ;RESULT FPS
6605  033504  000012                          .WORD   12                 ;FEC
6606                                ;9/EXP= 1743, FIU=0
6607  033506  012737  000002  001042          MOV     #2,@#FLAG                  ;NO INTERRUPTS
6608  033514  004767  000542                  JSR     R7,LXPSUB                  ;DO TEST
6609  033520  123456  012346  012346          .WORD   123456,12346,12346,123             ;ACO
6610  033526  000123
6611  033530  176035                          .WORD    1743              ;EXP
6612  033532  000000  000000  000000          .WORD   0,0,0,0            ;RESULT
6613  033540  000000
6614  033542  005700                          .WORD   5700               ; TEST FPS
6615  033544  005704                          .WORD   5704               ;RESULT FPS
6616  033546  000012                          .WORD   12                 ;FEC
6617                                ;10/EXP =-16616, FID=1
6618  033550  012737  000002  001042          MOV     #2,@#FLAG                  ;NO INTERRUPTS
6619  033556  004767  000500                  JSR     R7,LXPSUB                  ;DO TEST
6620  033562  000377  123456  065432          .WORD   377,123456,65432,1                 ;ACO
6621  033570  000001
6622  033572  161162                          .WORD   -16616             ;EXP
6623  033574  074577  123456  065432          .WORD   74577,123456,65432,1               ;RESULT
6624  033602  000001
6625  033604  047700                          .WORD   47700              ; TEST FPS
6626  033606  147700                          .WORD   147700             ;RESULT FPS
6627  033610  000012                          .WORD   12                 ;FEC
6628                                ;11/EXP=177, ACO=UNDEFINED VARIABLE
6629  033612  005037  001042                  CLR     @#FLAG             ;NO INTERRUPTS
6630  033616  004767  000440                  JSR     R7,LXPSUB                  ;DO TEST
6631  033622  100177  177777  177777          .WORD   100177,-1,-1,-1                    ;ACO
6632  033630  177777
6633  033632  000177                          .WORD   177                ;EXP
6634  033634  177777  177777  177777          .WORD   -1,-1,-1,-1                ;RESULT
6635  033642  177777
6636  033644  007700                          .WORD   7700               ; TEST FPS
6637  033646  007710                          .WORD   7710               ;RESULT FPS
6638                                ;12/EXP=150 ACO=POS
6639  033650  005037  001042                  CLR     @#FLAG             ;NO INTERRUPT
6640  033654  004767  000402                  JSR     R7,LXPSUB                  ;DO TEST
6641  033660  000200  000100  000200          .WORD   200,100,200,300                    ;ACO
6642  033666  000300
6643  033670  000150                          .WORD   150                ;EXP
6644  033672  072000  000100  000200          .WORD   72000,100,200,300                  ;RESULT
6645  033700  000300
6646  033702  007717                          .WORD   7717               ; TEST FPS
6647  033704  007700                          .WORD   7700               ;RESULT FPS
6648                                ;13/EXP=200, ACO=NEG
6649  033706  012737  000001  001042          MOV     #1,@#FLAG
6650  033714  004767  000342                  JSR     R7,LXPSUB                  ;DO TEST
6651  033720  177777  177777  177777          .WORD   -1,-1,-1,-1                ;ACO
6652  033726  177777
6653  033730  000200                          .WORD   200                ;EXP
6654  033732  100177  177777  177777          .WORD   100177,-1,-1,-1            ;RESULT
```

```
6655  033740  177777
6656  033742  007705                          .WORD   7705            ; TEST FPS
6657  033744  107716                          .WORD   107716          ;RESULT FPS
6658  033746  000010                          .WORD   10              ;FEC
6659                          ;14/EXP=400, FID
6660  033750  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
6661  033756  004767  000300                  JSR     R7,LXPSUB               ;DO TEST
6662  033762  000555  177777  177776          .WORD   555,-1, 2,-3            ;ACO
6663  033770  177775
6664  033772  000400                          .WORD   400                     ;EXP
6665  033774  040155  177777  177776          .WORD   40155,-1,-2, 3          ;RESULT
6666  034002  177775
6667  034004  047700                          .WORD   47700           ; TEST FPS
6668  034006  147702                          .WORD   147702          ;RESULT FPS
6669  034010  000010                          .WORD   10              ;FEC
6670                          ;15/EXP=11011 FIU=0
6671  034012  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6672  034020  004767  000236                  JSR     R7,LXPSUB               ;DO TEST
6673  034024  177773  177777  177776          .WORD   177773, 1,-2,-3         ;ACO
6674  034032  177775
6675  034034  011011                          .WORD   11011           ;EXP
6676  034036  000000  000000  000000          .WORD   0,0,0,0         ;RESULT
6677  034044  000000
6678  034046  006700                          .WORD   6700            ; TEST FPS
6679  034050  006706                          .WORD   6706            ;RESULT FPS
6680                          ;16/EXP=LARGEST POSITIVE
6681  034052  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6682  034060  004767  000176                  JSR     R7,LXPSUB               ;DO TEST
6683  034064  123456  000100  000100          .WORD   123456.100.100.200              ;ACO
6684  034072  000200
6685  034074  077777                          .WORD   77777           ;EXP
6686  034076  137656  000100  000100          .WORD   137656.100.100.200              ;RESULT
6687  034104  000200
6688  034106  007740                          .WORD   7740            ; TEST FPS
6689  034110  107752                          .WORD   107752          ;RESULT FPS
6690  034112  000010                          .WORD   10              ;FEC
6691                          ;17/FLOATING
6692  034114  005037  001042                  CLR     @#FLAG          ;NO INTERRUPT
6693  034120  004767  000136                  JSR     R7,LXPSUB               ;DO TEST
6694  034124  123456  023465  000555          .WORD   123456.23465.555.444            ;ACO
6695  034132  000444
6696  034134  000050                          .WORD   50              ;EXP
6697  034136  152056  023465  000555          .WORD   152056.23465.555.444            ;RESULT
6698  034144  000444
6699  034146  007500                          .WORD   7500            ; TEST FPS
6700  034150  007510                          .WORD   7510            ;RESULT FPS
6701                          ;18/FLOATING UNDERFLOW
6702  034152  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6703  034160  004767  000076                  JSR     R7,LXPSUB               ;DO TEST
6704  034164  000333  000444  000555          .WORD   333.444.555.666         ;ACO
6705  034172  000666
6706  034174  177600                          .WORD   -200            ;EXP
6707  034176  000133  000444  000555          .WORD   133.444.555.666         ;RESULT
6708  034204  000666
6709  034206  007500                          .WORD   7500            ; TEST FPS
6710  034210  107504                          .WORD   107504          ;RESULT FPS
```

```
                        .WORD   12              ;FEC
                ;19/FLOATING OVERFLOW
                        MOV     #1,@#FLAG               ;INTERRUPT
                        JSR     R7,LXPSUB               ;DO TEST
                        .WORD   12346,123,345,456               ;ACO
                        .WORD   400             ;EXP
                        .WORD   40146,123,345,456               ;RESULT
                        .WORD   7400            ; TEST FPS
                        .WORD   107402          ;RESUL1 FPS
                        .WORD   10              ;FEC
                ;
                        JMP     HOP20                   ;GET OVER SUBROUTINE
                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                ;LDEXP
                ;               ACO
                ;               EXPONENT
                ;               RESULT
                ;               FPS BEFORE EXECUTION
                ;               FPS AFTER EXECUTION
                ;               (FEC)
                ;
                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                ;*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X*X
                ;
LXPSUB:         MOV     (SP)+,R2                ; RETURN ADDRESS TO USE AS POINTER
                        MOV     #50$,@#FPVEC            ;REDIRECT TRAP VECTOR
                        MOV     #RECDST,R1              ;POINT TO RESULT AREA
                        MOV     #200,R0                 ;SET FPS TO DOUBLE
                        LDFPS   R0                      ;
                        MOV     R2,R4                   ;POINT TO ACO DATA
                        LDD     (R4),ACO                        ;LOAD ACO
                        MOV     22(R2),R0               ;GET TEST FPS
                        LDFPS   R0                      ;LOAD TEST FPS
                        MOV     10(R2),R4               ;POINT TO TEST DATA
                ;
40$:            LDEXP   R4,ACO                  ;*TEST INSTRUCTION (ACCORDING TO MODE)
1$:             STST    (PC)+                   ;WAIT FOR POSSIBLE FPA TRAP.
                        .WORD   0               ;STORE STATUS HERE
                ;
                ;
                ;INSTRUCTION DIDNT TRAP
                        BIT     #1,@#FLAG                       ;VERIFY A NO TRAP CONDITION
                        BEQ     2$                      ;BRANCH IF GOOD
                        ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
                        .WORD   475                     ;UNIQUE ERROR NUMBER
                        .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                ;INSTRUCTION SHOULD HAVE TRAPPED
                        JMP     2$                      ;REJOIN CODE
                ;
                ;INSTRUCTION TRAPPED
50$:            BIT     #1,@#FLAG               ;SEE IF EXPECTING A TRAP
                        BNE     51$                     ;BRANCH IF EXPECTING A TRAP
```

```
034362  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
034364  000476                          .WORD   476                     ;UNIQUE ERROR NUMBER
034366  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;INSTRUCTION WASNT SUPPOSE TO TRAP
034370  000167  000020                  JMP     2$                      ;REJOIN CODE
034374  012604                  51$:    MOV     (SP)+,R4                ;SEE IF PC = INSTRUCTION
034376  005726                          TST     (SP)+                   ;CLEAN UP STACK
034400  022704  034324                  CMP     #1$,R4                  ;
034404  001403                          BEQ     2$                      ;BRANCH IF GOOD COMPARE
034406  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
034410  000477                          .WORD   477                     ;UNIQUE ERROR NUMBER
034412  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;PC WAS INCORRECT
                                ;
                                ;COMMON CODE FOR TRAP AND NO TRAP
                                ;VERIFY STATUS
034414  170203                  2$:     STFPS   R3                      ;SAVE FPS
034416  012700  000200                  MOV     #200,R0                 ;SETUP FPS
034422  170100                          LDFPS   R0                      ;FPS=200
034424  174011                          STD     AC0,(R1)                ;GET RESULT
034426  016200  000024                  MOV     24(R2),R0                       ;GET EXPECTED STATUS
034432  020003                          CMP     R0,R3                   ;VERIFY STATUS
034434  001403                          BEQ     3$                      ;BRANCH IF GOOD
034436  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
034440  000500                          .WORD   500                     ;UNIQUE ERROR NUMBER
034442  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD FPS
034444  010204                  3$:     MOV     R2,R4                   ;POINT TO EXPECTED DATA
034446  062704  000012                  ADD     #12,R4
034452  004767  145470          4$:     JSR     R7,DATVER                       ;VERIFY DATA
034456  005767  144356                  TST     COUNT
034462  001403                          BEQ     5$                      ;BRANCH IF GOOD
034464  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
034466  000501                          .WORD   501                     ;UNIQUE ERROR NUMBER
034470  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                ;BAD AC0
034472  005737  001042          5$:     TST     @#FLAG                  ;SEE IF NEED TO CHECK FEC
034476  001002                          BNE     7$                      ;BRANCH IF NEED TO CHECK
034500  000162  000026                  JMP     26(R2)                  ;RETURN FROM TEST
                                ;VERIFY FEC
034504  012704  001106          7$:     MOV     #RECFEC,R4              ;POINT TO FEC AREA
034510  170314                          STST    (R4)                    ;SAVE FEC
034512  021462  000026                  CMP     (R4),26(R2)                     ;VERIFY FEC FOR OVERFLOW
034516  001403                          BEQ     8$                      ;BRANCH IF GOOD
034520  104000                          ERROR                           ;ALL ERRORS TO TRAP TO EMT VECTOR
034522  000502                          .WORD   502                     ;UNIQUE ERROR NUMBER
034524  002013                          .WORD   FPPERR                  ;ADDRESS OF ERROR MESSAGE
                                                                        ;BAD FEC
034526  000162  000030          8$:     JMP     30(R2)          ;RETURN FROM TEST
                                ;
034532                          HOP20:

034532                          MSCD:
                                ;;*****************************************************************
                                ;*TEST 107       TEST STCDI, STCDL
                                ;;*****************************************************************
```

```
                                TST107:
                                        INC     $TESTN                  ;INCREMENT TEST NUMBER
                                ;1/ACO=0, INT
                                        CLR     @#FLAG                  ;NO INTERRUPTS
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   0177,0,0,0                      ;ACO
                                        .WORD   0,-1                    ;RESULT
                                        .WORD   7640                    ; TEST FPS
                                        .WORD   7644                    ;RESULT FPS
                                ;2/ACO=-0, LONG
                                        CLR     @#FLAG                  ;INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   100177,-1,-1,-1                 ;ACO
                                        .WORD   0,0                     ;RESULT
                                        .WORD   7700                    ; TEST FPS
                                        .WORD   7704                    ;RESULT FPS
                                ;3/EXP=100, LONG
                                        CLR     @#FLAG                          ;NO INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   20000,0,0,0                     ;ACO
                                        .WORD   0,0                     ;RESULT
                                        .WORD   300                     ; TEST FPS
                                        .WORD   304                     ;RESULT FPS
                                ;4/EXP=200, BAISED 0, INT, ROUND
                                        CLR     @#FLAG                  ;INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   140177,177777,1,1                       ;ACO
                                        .WORD   0,0                     ;RESULT
                                        .WORD   7700                    ; TEST FPS
                                        .WORD   7704                    ;RESULT FPS
                                ;5/LONG
                                        CLR     @#FLAG                  ;INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   47667,75757,157737,167773                       ;ACO
                                        .WORD   55675,173757                    ;RESULT
                                        .WORD   7717                    ; TEST FPS
                                        .WORD   7700                    ;RESULT FPS
                                ;6/LONG, EXP=2**32
                                        CLR     @#FLAG                          ;NO INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   46400,0,0,0                     ;ACO
                                        .WORD   1000,0                  ;RESULT
                                        .WORD   7700                    ; TEST FPS
                                        .WORD   7700                    ;RESULT FPS
                                ;7/LONG, EXP>2**32
                                        MOV     #1,@#FLAG                       ;INTERRUPT
                                        JSR     R7,SCDSUB                       ;DO TEST
                                        .WORD   77607,0,0,0                     ;ACO
                                        .WORD   0,0                     ;RESULT
```

```
6879  035004  007700                          .WOPD   7700            ; TEST FPS
6880  035006  107705                          .WORD   107705          ;RESULT FPS
6881                                  ;8/INT, EXP=2**15
6882  035010  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6883  035014  004767  000336                  JSR     R7,SCDSUB               ;DO TEST
6884  035020  043200  000000  000000          .WORD   43200,0,0,0             ;AC0
6885  035026  000000
6886  035030  010000  177777                  .WORD   10000,-1                ;RESULT
6887  035034  007600                          .WORD   7600            ; TEST FPS
6888  035036  007600                          .WORD   7600            ;RESULT FPS
6889                                  ;9/INT, EXP>2**15
6890  035040  012737  000001  001042          MOV     #1,@#FLAG               ;INTERRUPT
6891  035046  004767  000304                  JSR     R7,SCDSUB               ;DO TEST
6892  035052  077777  177777  177777          .WORD   77777,-1,-1,-1          ;AC0
6893  035060  177777
6894  035062  000000  177777                  .WORD   0,-1            ;RESULT
6895  035066  007600                          .WORD   7600            ; TEST FPS
6896  035070  107605                          .WORD   107605          ;RESULT FPS
6897                                  ;10/INT, EXP>2**15, FID
6898  035072  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6899  035100  004767  000252                  JSR     R7,SCDSUB               ;DO TEST
6900  035104  043300  000000  000000          .WORD   43300,0,0,0             ;AC0
6901  035112  000000
6902  035114  000000  014000                  .WORD   0,14000         ;RESULT
6903  035120  047700                          .WORD   47700           ; TEST FPS
6904  035122  047700                          .WORD   47700           ;RESULT FPS
6905                                  ;11/INT, EXP>2**15, FIC=0
6906  035124  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6907  035132  004767  000220                  JSR     R7,SCDSUB               ;DO TEST
6908  035136  143300  177777  177777          .WORD   143300,-1,-1,-1         ;AC0
6909  035144  177777
6910  035146  177777  163741                  .WORD   -1,163741               ;RESULT
6911  035152  007300                          .WORD   7300            ; TEST FPS
6912  035154  007310                          .WORD   7310            ;RESULT FPS
6913                                  ;12/LONG, EXP>2**32, FID
6914  035156  012737  000002  001042          MOV     #2,@#FLAG               ;INTERRUPT
6915  035164  004767  000166                  JSR     R7,SCDSUB               ;DO TEST
6916  035170  050100  000000  000000          .WORD   50100,0,0,0             ;AC0
6917  035176  000000
6918  035200  000000  000000                  .WORD   0,0             ;RESULT
6919  035204  047700                          .WORD   47700           ; TEST FPS
6920  035206  147705                          .WORD   147705          ;RESULT FPS
6921                                  ;13/LONG, EXP>2**32, FIC=0
6922  035210  012737  000000  001042          MOV     #0,@#FLAG               ;NO INTERRUPT
6923  035216  004767  000134                  JSR     R7,SCDSUB               ;DO TEST
6924  035222  050377  177777  177777          .WORD   50377,-1,-1,-1          ;AC0
6925  035230  177777
6926  035232  000000  000000                  .WORD   0,0             ;RESULT
6927  035236  007300                          .WORD   7300            ; TEST FPS
6928  035240  007305                          .WORD   7305            ;RESULT FPS
6929                                  ;14/LONG, EXP<0
6930  035242  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6931  035246  004767  000104                  JSR     R7,SCDSUB               ;DO TEST
6932  035252  100200  177777  177777          .WORD   100200,-1,-1,-1         ;AC0
6933  035260  177777
6934  035262  000000  000000                  .WORD   0,0             ;RESULT
```

```
6935  035266  007757                          .WORD   7757            ; TEST FPS
6936  035270  007744                          .WORD   7744            ;RESULT FPS
6937                                  ;1.5/INT, EXP<0
6938  035272  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6939  035276  004767  000054                  JSR     R7,SCDSUB               ;DO TEST
6940  035302  037700  177777  177777          .WORD   37700,-1, 1,-2          ;AC0
6941  035310  177776
6942  035312  000000  177777                  .WORD   0,-1            ;RESULT
6943  035316  007600                          .WORD   7600            ; TEST FPS
6944  035320  007604                          .WORD   7604            ;RESULT FPS
6945                                  ;16/INT, EXP=10
6946  035322  005037  001042                  CLR     @#FLAG          ;NO INTERRUPTS
6947  035326  004767  000024                  JSR     R7,SCDSUB               ;DO TEST
6948  035332  004377  177777  177777          .WORD   4377, 1,-1,-1           ;AC0
6949  035340  177777
6950  035342  000000  177777                  .WORD   0,-1            ;RESULT
6951  035346  007600                          .WORD   7600            ; TEST FPS
6952  035350  007604                          .WORD   7604            ;RESULT FPS
6953                                  ;
6954
6955  035352  000167  000244                  JMP     @OP21           ;GET OVER SUBROUTINE
6956                                  ;*X*X*X
```

```
6991  035442  000503                          .WORD   503             ;UNIQUE ERROR NUMBER
6992  035444  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
6993                                                                  ;INSTRUCTION SHOULD HAVE TRAPPED
6994  035446  000167  000042                  JMP     2$              ;REJOIN CODE
6995                                  ;
6996                                  ;INSTRUCTION TRAPPED
6997  035452  032737  000001  001042  50$:     BIT     #1,@#FLAG       ;SEE IF EXPECTING A TRAP
6998  035460  001005                          BNE     51$             ;BRANCH IF EXPECTING A TRAP
6999  035462  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7000  035464  000504                          .WORD   504             ;UNIQUE ERROR NUMBER
7001  035466  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7002                                                                  ;INSTRUCTION WASNT SUPPOSE TO TRAP
7003  035470  000167  000020                  JMP     2$              ;REJOIN CODE
7004  035474  012604                  51$:     MOV     (SP)+,R4        ;SEE IF PC = INSTRUCTION
7005  035476  005726                          TST     (SP)+           ;CLEAN UP STACK
7006  035500  022704  035424                  CMP     #1$,R4          ;
7007  035504  001403                          BEQ     2$              ;BRANCH IF GOOD COMPARE
7008  035506  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7009  035510  000505                          .WORD   505             ;UNIQUE ERROR NUMBER
7010  035512  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7011                                                                  ;PC WAS INCORRECT
7012                                  ;
7013                                  ;COMMON CODE FOR TRAP AND NO TRAP
7014                                  ;VERIFY STATUS
7015  035514  170203                  2$:     STFPS   R3              ;SAVE FPS
7016  035516  016200  000016                  MOV     16(R2),R0               ;GET EXPECTED STATUS
7017  035522  020003                          CMP     R0,R3           ;VERIFY STATUS
7018  035524  001403                          BEQ     3$              ;BRANCH IF GOOD
7019  035526  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7020  035530  000506                          .WORD   506             ;UNIQUE ERROR NUMBER
7021  035532  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7022                                                                  ;BAD FPS
7023  035534  010204                  3$:     MOV     R2,R4           ;POINT TO EXPECTED DATA
7024  035536  062704  000010                  ADD     #10,R4
7025  035542  004767  144362          4$:     JSR     R7,DATVFR               ;VERIFY DATA
7026  035546  005767  143266                  TST     COUNT
7027  035552  001403                          BEQ     5$              ;BRANCH IF GOOD
7028  035554  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7029  035556  000507                          .WORD   507             ;UNIQUE ERROR NUMBER
7030  035560  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7031                                                                  ;BAD ACO
7032  035562  005737  001042          5$:     TST     @#FLAG          ;SEE IF NEED TO CHECK FEC
7033  035566  001002                          BNE     7$              ;BRANCH IF NEED TO CHECK
7034  03557C  000162  000020                  JMP     20(R2)          ;RETURN FROM TEST
7035                                  ;VERIFY FEC
7036  035574  012704  001106          7$:     MOV     #RECFEC,R4              ;POINT TO FEC AREA
7037  035600  170314                          STST    (R4)            ;SAVE FEC
7038  035602  021427  000006                  CMP     (R4),#6         ;VERIFY FEC FOR OVERFLOW
7039  035606  001403                          BEQ     8$              ;BRANCH IF GOOD
7040  035610  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7041  035612  000510                          .WORD   510             ;UNIQUE ERROR NUMBER
7042  035614  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7043                                                                  ;BAD FEC
7044  035616  000162  000020          8$:     JMP     20(R2)          ;RETURN FROM TEST
7045                                  ;
7046  035622                          HOP21:
```

```
                                        ;
035622                                  MSCF:
                                        ;;*****************************************************************
                                        ;*TEST 110       TEST STCFI, STCFL
                                        ;;*****************************************************************
035622                                  TST110:
035622  005267  143156                          INC     $TESTN                  ;INCREMENT TEST NUMBER
                                        ;1/LONG EXP =30
035626  005037  001042                          CLR     @#FLAG          ;NO INTERRUPTS
035632  004767  177520                          JSR     R7,SCDSUB               ;DO TEST
035636  044541  052525  177777                  .WORD   44541,52525, 1, 1               ;AC0
035644  177777
035646  000003  102525                          .WORD   3,102525                ;RESULT
035652  007517                                  .WORD   7517            ; TEST FPS
035654  007500                                  .WORD   7500            ;RESULT FPS
                                        ;2/INT, EXP<0
035656  005037  001042                          CLR     @#FLAG          ;NO INTERRUPTS
035662  004767  177470                          JSR     R7,SCDSUB               ;DO TEST
035666  002300  177777  177777                  .WORD   2300,-1,-1,-1           ;AC0
035674  177777
035676  000000  177777                          .WORD   0,-1            ;RESULT
035702  007400                                  .WORD   7400            ; TEST FPS
035704  007404                                  .WORD   7404            ;RESULT FPS
                                        ;3/LONG, EXP>>2**32
035706  012737  000001  001042                  MOV     #1,@#FLAG               ;INTERRUPT
035714  004767  177436                          JSR     R7,SCDSUB               ;DO TEST
035720  070000  177777  177777                  .WORD   70000,-1,-1,-1          ;AC0
035726  177777
035730  000000  000000                          .WORD   0,0             ;RESULT
035734  007540                                  .WORD   7540            ; TEST FPS
035736  107545                                  .WORD   107545          ;RESULT FPS
                                        ;4/INT,EXP=5, FIC=0, FID=1
035740  005037  001042                          CLR     @#FLAG          ;NO INTERRUPTS
035744  004767  177406                          JSR     R7,SCDSUB               ;DO TEST
035750  052000  000000  177777                  .WORD   52000,0,-1,-1           ;AC0
035756  177777
035760  000000  177777                          .WORD   0,-1            ;RESULT
035764  047000                                  .WORD   47000           ; TEST FPS
035766  047005                                  .WORD   47005           ;RESULT FPS
                                        ;


035770                                  MSXP:
                                        ;;*****************************************************************
                                        ;*TEST 111       TEST STEXP
                                        ;;*****************************************************************
035770                                  TST111:
035770  005267  143010                          INC     $TESTN                  ;INCREMENT TEST NUMBER
                                        ;1/EXP=100
035774  004767  000154                          JSR     R7,SXPSUB               ;DO TEST
036000  020000  000000  000000                  .WORD   20000,0,0,0             ;AC0
036006  000000
036010  177700                                  .WORD   -100            ;RESULT
036012  007740                                  .WORD   7740            ; TEST FPS
036014  007750                                  .WORD   7750            ;RESULT FPS
                                        ;2/EXP=201 FLOAT, NEG
```

```
7103  036016  004767  000132              JSR     R7,SXPSUB               ;DO TEST
7104  036022  140377  177777  177777      .WORD   140377, 1, 1,0           ;AC0
7105  036030  000000
7106  036032  000001                      .WORD   1                       ;RESULT
7107  036034  007500                      .WORD   7500                    ; TEST FPS
7108  036036  007500                      .WORD   7500                    ;RESULT FPS
7109                          ;3/EXP=-177
7110  036040  004767  000110              JSR     R7,SXPSUB               ;DO TEST
7111  036044  000177  177777  177777      .WORD   177,-1,-1,-1            ;AC0
7112  036052  177777
7113  036054  177600                      .WORD   177600                  ;RESULT
7114  036056  007700                      .WORD   7700                    ; TEST FPS
7115  036060  007710                      .WORD   7710                    ;RESULT FPS
7116                          ;4/EXP=-100
7117  036062  004767  000065              JSR     R7,SXPSUB               ;DO TEST
7118  036066  020000  000000  177777      .WORD   20000,0, 1,-1           ;AC0
7119  036074  177777
7120  036076  177700                      .WORD   -100                    ;RESULT
7121  036100  040200                      .WORD   40200                   ; TEST FPS
7122  036102  040210                      .WORD   40210                   ;RESULT FPS
7123                          ;5/EXP=200
7124  036104  004767  000044              JSR     R7,SXPSUB               ;DO TEST
7125  036110  040000  000000  000000      .WORD   40000,0,0,0             ;AC0
7126  036116  000000
7127  036120  000000                      .WORD   0                       ;RESULT
7128  036122  007700                      .WORD   7700                    ; TEST FPS
7129  036124  007704                      .WORD   7704    ;RESULT FPS
7130                          ;6/EXP=0
7131  036126  004767  000022              JSR     R7,SXPSUB               ;DO TEST
7132  036132  000177  177777  177777      .WORD   177,-1,-1,-1            ;AC0
7133  036140  177777
7134  036142  177600                      .WORD   177600                  ;RESULT
7135  036144  000000                      .WORD   0                       ; TEST FPS
7136  036146  000010                      .WORD   10                      ;RESULT FPS
7137                          ;
7138
7139  036150  000167  000120              JMP     HOP22                   ;GET OVER SUBROUTINE
7140                          ;*X*X*X
```

```
7159  036202  016200  000012          MOV     12(R2),R0       ;GET TEST FPS
7160  036206  170100                  LDFPS   R0              ;LOAD TEST FPS
7161                                  ;
7162  036210  175011                  40$:    STEXP   AC0,(R1)        ;*TEST INSTRUCTION(ACCORDING TO MODE)
7163                                  ;
7164                                  ;VERIFY STATUS
7165  036212  170203                  2$:     STFPS   R3              ;SAVE FPS
7166  036214  016200  000014                  MOV     14(R2),R0               ;GET EXPECTED STATUS
7167  036220  020003                          CMP     R0,R3           ;VERIFY STATUS
7168  036222  001403                          BEQ     3$              ;BRANCH IF GOOD
7169  036224  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7170  036226  000511                          .WORD   511             ;UNIQUE ERROR NUMBER
7171  036230  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7172                                                          ;BAD FPS
7173  036232  016204  000010          3$:     MOV     10(R2),R4       ;POINT TO EXPECTED EXPONENT
7174  036236  020437  001126                  CMP     R4,@#RECDST     ;VERIFY EXPONENT
7175  036242  001403                          BEQ     5$              ;BRANCH IF GOOD
7176  036244  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7177  036246  000512                          .WORD   512             ;UNIQUE ERROR NUMBER
7178  036250  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7179                                                          ;BAD ACO
7180  036252  000162  000016          5$:     JMP     16(R2)          ;RETURN FROM TEST
7181                                  ;
7182                                  ;INSTRUCTION TRAPPED
7183  036256  012600                  50$:    MOV     (SP)+,R0        ;SAVE PC
7184  036260  012605                          MOV     (SP)+,R5        ;SAVE OLD PS
7185  036262  104000                          ERROR                   ;ALL ERRORS TO TRAP TO EMT VECTOR
7186  036264  000513                          .WORD   513             ;UNIQUE ERROR NUMBER
7187  036266  002013                          .WORD   FPPERR          ;ADDRESS OF ERROR MESSAGE
7188                                                          ;WILD TRAP DURING STEXP
7189  036270  000167  177756                  JMP     5$              ;REJOIN CODE
7190                                  ;
7191
7192  036274                          HOP22:
7193
7194
```

```
                                .MCALL  IDMSG,ENDPAS
                                .SBTTL  END OF PASS ROUTINE

                                ;;**********************************************************************
                                ;*INCREMENT THE PASS NUMBER ($PASS)
                                ;*INDICATE END-OF-PROGRAM AFTER 1 PASSES THRU THE PROGRAM
                                ;*IF THERES A MONITOR GO TO IT
                                ;*IF THERE ISN'T JUMP TO RESTART

036274                          $EOP:
036274  005767  142506                  TST     $PASS                   ;ONLY TYPE MESSAGE AT END OF FIRST PASS
036300  001002                          BNE     SKIPID                  ;IF >0 THEN SKIP THE ID MESSAGE
036302  104401  036402                  TYPE    .MSG1                   ;ELSE TYPE THE ID MESSAGE
036306                          SKIPID:
036306  005267  142474                  INC     $PASS           ;;INCREMENT THE PASS NUMBER
036312  042767  100000  142466        BIC     #100000,$PASS   ;;DON'T ALLOW A NEG. NUMBER
036320  005327                  DEC     (PC)+           ;;LOOP?
036322  000001                  $EOPCT: .WORD   1
036324  003022                  BGT     $DOAGN          ;;YES
036326  012737                  MOV     (PC)+,@(PC)+    ;;RESTORE COUNTER
036330  000001                  $ENDCT: .WORD   1
036332  036322                          $EOPCT
036334  104401  036456                  TYPE    .MSG2
036340  016746  142442                  MOV     $PASS,-(SP)     ;;SAVE $PASS FOR TYPEOUT
036344  104405                          TYPDS                   ;;GO TYPE--DECIMAL ASCII WITH SIGN
036346  104401  036376                  TYPE    .$ENULL
036352  013700  000042          $GET42: MOV     @#42,R0         ;;GET MONITOR ADDRESS
036356  001405                  BEQ     $DOAGN          ;;BRANCH IF NO MONITOR
036360  000005                  RESET                   ;;CLEAR THE WORLD
036362  004710                  $ENDAD: JSR     PC,(R0)         ;;GO TO MONITOR
036364  000240                  NOP                     ;;SAVE ROOM
036366  000240                  NOP                     ;;FOR
036370  000240                  NOP                     ;;ACT11
036372                          $DOAGN:
036372  000137                  JMP     @(PC)+          ;;RETURN
036374  002410                  $RTNAD: .WORD   RESTART
036376     377     377     000  $ENULL: .BYTE   -1,-1,0            ;;NULL CHARACTER STRING
036402                          .EVEN
036402  005015  055103  042113  MSG1:   .ASCIZ  <CR><LF>/CZKDL-B-0 KDJ11 FLOATING POINT DIAGNOSTIC/
036410  026514  026502  020060
036416  042113  030512  020061
036424  046106  040517  044524
036432  043516  050040  044517
036440  052116  042040  040511
036446  047107  051517  044524
036454  000103
036456  005015  055103  042113  MSG2:   .ASCIZ  <CR><LF>/CZKDLB END PASS #/
036464  041114  042440  042116
036472  050040  051501  020123
036500  000043

                                .EVEN
                                .SBTTL  TYPE ROUTINE

                                ;;**********************************************************************
                                ;*ROUTINE TO TYPE ASCIZ MESSAGE. MESSAGE MUST TERMINATE WITH A 0 BYTE.
                                ;*THE ROUTINE WILL INSERT A NUMBER OF NULL CHARACTERS AFTER A LINE FEED.
```

```
7251                                    ;*NOTE1:        $NULL CONTAINS THE CHARACTER TO BE USED AS THE FILLER CHARACTER.
7252                                    ;*NOTE2:        $FILLS CONTAINS THE NUMBER OF FILLER CHARACTERS REQUIRED.
7253                                    ;*NOTE3:        $FILLC CONTAINS THE CHARACTER TO FILL AFTER.
7254                                    ;*
7255                                    ;*CALL:
7256                                    ;*1) USING A TRAP INSTRUCTION
7257                                    ;*      TYPE    .MESADR         ;;MESADR IS FIRST ADDRESS OF AN ASCIZ STRING
7258                                    ;*OR
7259                                    ;*      TYPE
7260                                    ;*      MESADR
7261                                    ;*
7262
7263  036502  105767  000343           $TYPE:  TSTB    $TPFLG          ;;IS THERE A TERMINAL?
7264  036506  100002                           BPL     1$              ;;BR IF YES
7265  036510  000000                           HALT                    ;;HALT HERE IF NO TERMINAL
7266  036512  000430                           BR      3$              ;;LEAVE
7267  036514  010046                    1$:    MOV     R0,-(SP)        ;;SAVE R0
7268  036516  017600  000002                   MOV     @2(SP),R0       ;;GET ADDRESS OF ASCIZ STRING
7269  036522  122767  000001  142270           CMPB    #APTENV,$ENV    ;;RUNNING IN APT MODE
7270  036530  001011                           BNE     62$             ;;NO,GO CHECK FOR APT CONSOLE
7271  036532  132767  000100  142261           BITB    #APTSPOOL,$ENVM ;;SPOOL MESSAGE TO APT
7272  036540  001405                           BEQ     62$             ;;NO,GO CHECK FOR CONSOLE
7273  036542  010067  000004                   MOV     R0,61$          ;;SETUP MESSAGE ADDRESS FOR APT
7274  036546  004767  001034                   JSR     PC,$ATY3        ;;SPOOL MESSAGE TO APT
7275  036552  000000                    61$:   .WORD   0               ;;MESSAGE ADDRESS
7276  036554  132767  000040  142237   62$:   BITB    #APTCSUP,$ENVM  ;;APT CONSOLE SUPPRESSED
7277  036562  001003                           BNE     60$             ;;YES,SKIP TYPE OUT
7278  036564  112046                    2$:    MOVB    (R0)+,-(SP)     ;;PUSH CHARACTER TO BE TYPED ONTO STACK
7279  036566  001005                           BNE     4$              ;;BR IF IT ISN'T THE TERMINATOR
7280  036570  005726                           TST     (SP)+           ;;IF TERMINATOR POP IT OFF THE STACK
7281  036572  012600                    60$:   MOV     (SP)+,R0        ;;RESTORE R0
7282  036574  062716  000002           3$:    ADD     #2,(SP)         ;;ADJUST RETURN PC
7283  036600  000002                           RTI                     ;;RETURN
7284  036602  122716  000011           4$:    CMPB    #HT,(SP)        ;;BRANCH IF <HT>
7285  036606  001430                           BEQ     8$
7286  036610  122716  000200                   CMPB    #CRLF,(SP)      ;;BRANCH IF NOT <CRLF>
7287  036614  001006                           BNE     5$
7288  036616  005726                           TST     (SP)+           ;;POP  <CR><LF> EQUIV
7289  036620  104401                           TYPE                    ;;TYPE A CR AND LF
7290  036622  002077                           $CRLF
7291  036624  105067  000202                   CLRB    $CHARCNT        ;;CLEAR CHARACTER COUNT
7292  036630  000755                           BR      2$              ;;GET NEXT CHARACTER
7293  036632  004767  000056           5$:    JSR     PC,$TYPEC       ;;GO TYPE THIS CHARACTER
7294  036636  126726  000206           6$:    CMPB    $FILLC,(SP)+    ;;IS IT TIME FOR FILLER CHARS.?
7295  036642  001350                           BNE     2$              ;;IF NO GO GET NEXT CHAR.
7296  036644  016746  000176                   MOV     $NULL,-(SP)     ;;GET # OF FILLER CHARS. NEEDED
7297                                           ;;AND THE NULL CHAR.
7298  036650  105366  000001           7$:    DECB    1(SP)           ;;DOES A NULL NEED TO BE TYPED?
7299  036654  002770                           BLT     6$              ;;BR IF NO--GO POP THE NULL OFF OF STACK
7300  036656  004767  000032                   JSR     PC,$TYPEC       ;;GO TYPE A NULL
7301  036662  105367  000144                   DECB    $CHARCNT        ;;DO NOT COUNT AS A COUNT
7302  036666  000770                           BR      7$              ;;LOOP
7303
7304                                    ;HORIZONTAL TAB PROCESSOR
7305
7306  036670  112716  000040           8$:    MOVB    #' ,(SP)        ;;REPLACE TAB WITH SPACE
```

```
7307  036674  004767  000014          9$:     JSR     PC,$TYPEC       ;;TYPE A SPACE
7308  036700  132767  000007  000124          BITB    #7,$CHARCNT     ;;BRANCH IF NOT AT
7309  036706  001372                          BNE     9$              ;;TAB STOP
7310  036710  005726                          TST     (SP)+           ;;POP SPACE OFF STACK
7311  036712  000724                          BR      2$              ;;GET NEXT CHARACTER
7312  036714                          $TYPEC:
7313  036714  105777  000116                  TSTB    @$TKS           ;;CHAR IN KYBD BUFFER?          ;MJD001
7314  036720  100022                          BPL     10$             ;;BR IF NOT                     ;MJD001
7315  036722  017746  000112                  MOV     @$TKB,-(SP)     ;;GET CHAR                      ;MJD001
7316  036726  042716  177600                  BIC     #177600,(SP)    ;;STRIP EXTRANEOUS BITS         ;MJD001
7317  036732  122716  000023                  CMPB    #$XOFF,(SP)     ;;WAS CHAR XOFF                 ;MJD001
7318  036736  001012                          BNE     102$            ;;BR IF NOT                     ;MJD001
7319  036740                          101$:                                                           ;MJD001
7320  036740  105777  000072                  TSTB    @$TKS           ;;WAIT FOR CHAR                 ;MJD001
7321  036744  100375                          BPL     101$                                            ;MJD001
7322  036746  117716  000066                  MOVB    @$TKB,(SP)      ;;GET CHAR                      ;MJD001
7323  036752  042716  177600                  BIC     #177600,(SP)    ;;STRIP IT                      ;MJD001
7324  036756  122716  000021                  CMPB    #$XON,(SP)      ;;WAS IT XON?                   ;MJD001
7325  036762  001366                          BNE     101$            ;;BR IF NOT                     ;MJD001
7326  036764                          102$:                                                           ;MJD001
7327  036764  005726                          TST     (SP)+           ;;FIX STACK                     ;MJD001
7328  036766                          10$:                                                            ;MJD001
7329  036766  105777  000050                  TSTB    @$TPS           ;;WAIT UNTIL PRINTER IS READY
7330  036772  100375                          BPL     10$                                             ;MJD001
7331  036774  116677  000002  000042          MOVB    2(SP),@$TPB     ;;LOAD CHAR TO BE TYPED INTO DATA REG.
7332  037002  122766  000015  000002          CMPB    #CR,2(SP)       ;;IS CHARACTER A CARRIAGE RETURN?
7333  037010  001003                          BNE     1$              ;;BRANCH IF NO
7334  037012  105067  000014                  CLRB    $CHARCNT        ;;YES--CLEAR CHARACTER COUNT
7335  037016  000406                          BR      $TYPEX          ;;EXIT
7336  037020  122766  000012  000002  1$:     CMPB    #LF,2(SP)       ;;IS CHARACTER A LINE FEED?
7337  037026  001402                          BEQ     $TYPEX          ;;BRANCH IF YES
7338  037030  105227                          INCB    (PC)+           ;;COUNT THE CHARACTER
7339  037032  000000          $CHARCNT:.WORD  0               ;;CHARACTER COUNT STORAGE
7340  037034  000207          $TYPEX: RTS     PC
7341
7342  037036  177560          $TKS:   .WORD   177560          ;;TTY KDB STATUS                ;MJD001
7343  037040  177562          $TKB:   .WORD   177562          ;;TTY KBD BUFFER                ;MJD001
7344  037042  177564          $TPS:   .WORD   177564          ;;TTY PRINTER STATUS REG. ADDRESS
7345  037044  177566          $TPB:   .WORD   177566          ;;TTY PRINTER BUFFER REG. ADDRESS
7346  037046     000          $NULL:  .BYTE   0               ;;CONTAINS NULL CHARACTER FOR FILLS
7347  037047     002          $FILLS: .BYTE   2               ;;CONTAINS # OF FILLER CHARACTERS REQUIRED
7348  037050     012          $FILLC: .BYTE   12              ;;INSERT FILL CHARS. AFTER A "LINE FEED"
7349  037051     000          $TPFLG: .BYTE   0               ;;"TERMINAL AVAILABLE" FLAG (BIT<07>=0=YES)
7350  037052     077          $QUES:  .ASCII  "?"             ;;QUESTION MARK
7351  037053     012      000 $LF:    .ASCIZ  <12>            ;;LINEFEED
7352           037056          .EVEN
7353                  .SBTTL  CONVERT BINARY TO DECIMAL AND TYPE ROUTINE
7354
7355                  ;;*************************************************************
7356                  ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 5-DIGIT
7357                  ;*SIGNED DECIMAL (ASCII) NUMBER AND TYPE IT. DEPENDING ON WHETHER THE
7358                  ;*NUMBER IS POSITIVE OR NEGATIVE A SPACE OR A MINUS SIGN WILL BE TYPED
7359                  ;*BEFORE THE FIRST DIGIT OF THE NUMBER. LEADING ZEROS WILL ALWAYS BE
7360                  ;*REPLACED WITH SPACES.
7361                  ;*CALL:
7362                  ;*      MOV     NUM,-(SP)       ;;PUT THE BINARY NUMBER ON THE STACK
```

```
                                ;*      TYPDS                   ;;GO TO THE ROUTINE
                                ;
037056                          $TYPDS:
037056  010046                         MOV     R0,-(SP)        ;;PUSH R0 ON STACK
037060  010146                         MOV     R1,-(SP)        ;;PUSH R1 ON STACK
037062  010246                         MOV     R2,-(SP)        ;;PUSH R2 ON STACK
037064  010346                         MOV     R3,-(SP)        ;;PUSH R3 ON STACK
037066  010546                         MOV     R5,-(SP)        ;;PUSH R5 ON STACK
037070  012746  020200                 MOV     #20200,-(SP)    ;;SET BLANK SWITCH AND SIGN
037074  016605  000020                 MOV     20(SP),R5       ;;GET THE INPUT NUMBER
037100  100004                       BPL     1$              ;;BR IF INPUT IS POS.
037102  005405                       NEG     R5              ;;MAKE THE BINARY NUMBER POS.
037104  112766  000055  000001       MOVB    #'-,1(SP)       ;;MAKE THE ASCII NUMBER NEG.
037112  005000                 1$:   CLR     R0              ;;ZERO THE CONSTANTS INDEX
037114  012703  037272               MOV     #$DBLK,R3       ;;SETUP THE OUTPUT POINTER
037120  112723  000040               MOVB    #' ,(R3)+       ;;SET THE FIRST CHARACTER TO A BLANK
037124  005002                 2$:   CLR     R2              ;;CLEAR THE BCD NUMBER
037126  016001  037262               MOV     $DTBL(R0),R1    ;;GET THE CONSTANT
037132  160105                 3$:   SUB     R1,R5           ;;FORM THIS BCD DIGIT
037134  002402                       BLT     4$              ;;BR IF DONE
037136  005202                       INC     R2              ;;INCREASE THE BCD DIGIT BY 1
037140  000774                       BR      3$
037142  060105                 4$:   ADD     R1,R5           ;;ADD BACK THE CONSTANT
037144  005702                       TST     R2              ;;CHECK IF BCD DIGIT=0
037146  001002                       BNE     5$              ;;FALL THROUGH IF 0
037150  105716                       TSTB    (SP)            ;;STILL DOING LEADING 0'S?
037152  100407                       BMI     7$              ;;BR IF YES
037154  106316                 5$:   ASLB    (SP)            ;;MSD?
037156  103003                       BCC     6$              ;;BR IF NO
037160  116663  000001  177777       MOVB    1(SP),-1(R3)    ;;YES--SET THE SIGN
037166  052702  000060           6$: BIS     #'0,R2          ;;MAKE THE BCD DIGIT ASCII
037172  052702  000040           7$: BIS     #' ,R2          ;;MAKE IT A SPACE IF NOT ALREADY A DIGIT
037176  110223                       MOVB    R2,(R3)+        ;;PUT THIS CHARACTER IN THE OUTPUT BUFFER
037200  005720                       TST     (R0)+           ;;JUST INCREMENTING
037202  020027  000010               CMP     R0,#10          ;;CHECK THE TABLE INDEX
037206  002746                       BLT     2$              ;;GO DO THE NEXT DIGIT
037210  003002                       BGT     8$              ;;GO TO EXIT
037212  010502                       MOV     R5,R2           ;;GET THE LSD
037214  000764                       BR      6$              ;;GO CHANGE TO ASCII
037216  105726                 8$:   TSTB    (SP)+           ;;WAS THE LSD THE FIRST NON-ZERO?
037220  100003                       BPL     9$              ;;BR IF NO
037222  116663  177777  177776       MOVB    -1(SP),-2(R3)   ;;YES--SET THE SIGN FOR TYPING
037230  105013                 9$:   CLRB    (R3)            ;;SET THE TERMINATOR
037232  012605                       MOV     (SP)+,R5        ;;POP STACK INTO R5
037234  012603                       MOV     (SP)+,R3        ;;POP STACK INTO R3
037236  012602                       MOV     (SP)+,R2        ;;POP STACK INTO R2
037240  012601                       MOV     (SP)+,R1        ;;POP STACK INTO R1
037242  012600                       MOV     (SP)+,R0        ;;POP STACK INTO R0
037244  104401  037272               TYPE    ,$DBLK          ;;NOW TYPE THE NUMBER
037250  016666  000002  000004       MOV     2(SP),4(SP)     ;;ADJUST THE STACK
037256  012616                       MOV     (SP)+,(SP)
037260  000002                       RTI                     ;;RETURN TO USER
037262  023420                 $DTBL: 10000.
037264  001750                        1000.
037266  000144                         100.
037270  000012                          10.
```

```
 7419  037272  000004                  $DBLK:  .BLKW   4
 7420                                  .SBTTL  BINARY TO OCTAL (ASCII) AND TYPE
 7421
 7422                                  ;;*********************************************************************
 7423                                  ;*THIS ROUTINE IS USED TO CHANGE A 16-BIT BINARY NUMBER TO A 6-DIGIT
 7424                                  ;*OCTAL (ASCII) NUMBER AND TYPE IT.
 7425                                  ;*$TYPOS---ENTER HERE TO SETUP SUPPRESS ZEROS AND NUMBER OF DIGITS TO TYPE
 7426                                  ;*CALL:
 7427                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
 7428                                  ;*      TYPOS                   ;;CALL FOR TYPEOUT
 7429                                  ;*      .BYTE   N               ;;N=1 TO 6 FOR NUMBER OF DIGITS TO TYPE
 7430                                  ;*      .BYTE   M               ;;M=1 OR 0
 7431                                  ;*                                      ;;1=TYPE LEADING ZEROS
 7432                                  ;*                                      ;;0=SUPPRESS LEADING ZEROS
 7433                                  ;*
 7434                                  ;*$TYPON----ENTER HERE TO TYPE OUT WITH THE SAME PARAMETERS AS THE LAST
 7435                                  ;*$TYPOS OR $TYPOC
 7436                                  ;*CALL:
 7437                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
 7438                                  ;*      TYPON                   ;;CALL FOR TYPEOUT
 7439                                  ;*
 7440                                  ;*$TYPOC---ENTER HERE FOR TYPEOUT OF A 16 BIT NUMBER
 7441                                  ;*CALL:
 7442                                  ;*      MOV     NUM,-(SP)       ;;NUMBER TO BE TYPED
 7443                                  ;*      TYPOC                   ;;CALL FOR TYPEOUT
 7444
 7445  037302  017646  000000          $TYPOS: MOV     @(SP),-(SP)     ;;PICKUP THE MODE
 7446  037306  116667  000001  000211          MOVB    1(SP),$OFILL    ;;LOAD ZERO FILL SWITCH
 7447  037314  112667  000207                  MOVB    (SP)+,$OMODE+1  ;;NUMBER OF DIGITS TO TYPE
 7448  037320  062716  000002                  ADD     #2,(SP)         ;;ADJUST RETURN ADDRESS
 7449  037324  000406                          BR      $TYPON
 7450  037326  112767  000001  000171  $TYPOC: MOVB    #1,$OFILL       ;;SET THE ZERO FILL SWITCH
 7451  037334  112767  000006  000165          MOVB    #6,$OMODE+1     ;;SET FOR SIX(6) DIGITS
 7452  037342  112767  000005  000154  $TYPON: MOVB    #5,$OCNT        ;;SET THE ITERATION COUNT
 7453  037350  010346                          MOV     R3,-(SP)        ;;SAVE R3
 7454  037352  010446                          MOV     R4,-(SP)        ;;SAVE R4
 7455  037354  010546                          MOV     R5,-(SP)        ;;SAVE R5
 7456  037356  116704  000145                  MOVB    $OMODE+1,R4     ;;GET THE NUMBER OF DIGITS TO TYPE
 7457  037362  005404                          NEG     R4
 7458  037364  062704  000006                  ADD     #6,R4           ;;SUBTRACT IT FOR MAX. ALLOWED
 7459  037370  110467  000132                  MOVB    R4,$OMODE       ;;SAVE IT FOR USE
 7460  037374  116704  000125                  MOVB    $OFILL,R4       ;;GET THE ZERO FILL SWITCH
 7461  037400  016605  000012                  MOV     12(SP),R5       ;;PICKUP THE INPUT NUMBER
 7462  037404  005003                          CLR     R3              ;;CLEAR THE OUTPUT WORD
 7463  037406  006105                  1$:     ROL     R5              ;;ROTATE MSB INTO "C"
 7464  037410  000404                          BR      3$              ;;GO DO MSB
 7465  037412  006105                  2$:     ROL     R5              ;;FORM THIS DIGIT
 7466  037414  006105                          ROL     R5
 7467  037416  006105                          ROL     R5
 7468  037420  010503                          MOV     R5,R3
 7469  037422  006103                  3$:     ROL     R3              ;;GET LSR OF THIS DIGIT
 7470  037424  105367  000076                  DECB    $OMODE          ;;TYPE THIS DIGIT?
 7471  037430  100016                          BPL     7$              ;;BR IF NO
 7472  037432  042703  177770                  BIC     #177770,R3      ;;GET RID OF JUNK
 7473  037436  001002                          BNE     4$              ;;TEST FOR 0
 7474  037440  005704                          TST     R4              ;;SUPPRESS THIS 0?
```

```
7475  037442  001403                        BEQ     5$              ;;BR IF YES
7476  037444  005204                4$:     INC     R4              ;;DON'T SUPPRESS ANYMORE 0'S
7477  037446  052703  000060                BIS     #'0,R3          ;;MAKE THIS DIGIT ASCII
7478  037452  052703  000040        5$:     BIS     #' ,R3          ;;MAKE ASCII IF NOT ALREADY
7479  037456  110367  000040                MOVB    R3,8$           ;;SAVE FOR TYPING
7480  037462  104401  037522                TYPE    ,8$             ;;GO TYPE THIS DIGIT
7481  037466  105367  000032        7$:     DECB    $OCNT           ;;COUNT BY 1
7482  037472  003347                        BGT     2$              ;;BR IF MORE TO DO
7483  037474  002402                        BLT     6$              ;;BR IF DONE
7484  037476  005204                        INC     R4              ;;INSURE LAST DIGIT ISN'T A BLANK
7485  037500  000744                        BR      2$              ;;GO DO THE LAST DIGIT
7486  037502  012605                6$:     MOV     (SP)+,R5        ;;RESTORE R5
7487  037504  012604                        MOV     (SP)+,R4        ;;RESTORE R4
7488  037506  012603                        MOV     (SP)+,R3        ;;RESTORE R3
7489  037510  016666  000002  000004        MOV     2(SP),4(SP)     ;;SET THE STACK FOR RETURNING
7490  037516  012616                        MOV     (SP)+,(SP)
7491  037520  000002                        RTI                     ;;RETURN
7492  037522     000                8$:     .BYTE   0               ;;STORAGE FOR ASCII DIGIT
7493  037523     000                        .BYTE   0               ;;TERMINATOR FOR TYPE ROUTINE
7494  037524     000                $OCNT:  .BYTE   0               ;;OCTAL DIGIT COUNTER
7495  037525     000                $OFILL: .BYTE   0               ;;ZERO FILL SWITCH
7496  037526  000000                $OMODE: .WORD   0               ;;NUMBER OF DIGITS TO TYPE
7497                                .SBTTL  TRAP DECODER
7498
7499                                ;;**************************************************************************
7500                                ;*THIS ROUTINE WILL PICKUP THE LOWER BYTE OF THE "TRAP" INSTRUCTION
7501                                ;*AND USE IT TO INDEX THROUGH THE TRAP TABLE FOR THE STARTING ADDRESS
7502                                ;*OF THE DESIRED ROUTINE. THEN USING THE ADDRESS OBTAINED IT WILL
7503                                ;*GO TO THAT ROUTINE.
7504
7505  037530  010046                $TRAP:  MOV     R0,-(SP)        ;;SAVE R0
7506  037532  016600  000002                MOV     2(SP),R0        ;;GET TRAP ADDRESS
7507  037536  005740                        TST     -(R0)           ;;BACKUP BY 2
7508  037540  111000                        MOVB    (R0),R0         ;;GET RIGHT BYTE OF TRAP
7509  037542  006300                        ASL     R0              ;;POSITION FOR INDEXING
7510  037544  016000  037564                MOV     $TRPAD(R0),R0   ;;INDEX TO TABLE
7511  037550  000200                        RTS     R0              ;;GO TO ROUTINE
7512
7513
7514                                ;;THIS IS USE TO HANDLE THE "GETPRI" MACRO
7515
7516  037552  011646                $TRAP2: MOV     (SP),-(SP)      ;;MOVE THE PC DOWN
7517  037554  016666  000004  000002        MOV     4(SP),2(SP)     ;;MOVE THE PSW DOWN
7518  037562  000002                        RTI                     ;;RESTORE THE PSW
7519
7520                                .MACRO  SETTRAP A,B,MSG
7521                                        $$SET   A,B,\<TRAP+$TRP>,\$TRP,<MSG>
7522                                .NLIST
7523                                $TRP=$TRP+1
7524                                .LIST
7525                                .ENDM   SETTRAP
7526                                .MACRO  $$SET   A,B,C,D,COMNT
7527                                .IF EQ $TRP-1
7528                                .SBTTL  TRAP TABLE
7529
7530                                ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
```

```
                                ;*BY THE "TRAP" INSTRUCTION.
                                ;
                                ;       ROUTINE
                                ;       -------
                                $TRPAD: .WORD   $TRAP2
                                .ENDC
                                .IIF NDF GNS,.NLIST
                                        A=      C
                                .IIF NDF GNS,.LIST
                                        B       ;;CALL=A        TRAP*D(C)       COMNT
                                .ENDM   $$SET
                                .MACRO  TRMTRP
                                $TERM=.-$TRPAD
                                .ENDM   TRMTRP
                                .SBTTL  TRAP TABLE

                                ;*THIS TABLE CONTAINS THE STARTING ADDRESSES OF THE ROUTINES CALLED
                                ;*BY THE "TRAP" INSTRUCTION.

                                ;       ROUTINE
                                ;       -------
037564  037552                  $TRPAD: .WORD   $TRAP2
037566  036502                          $TYPE   ;;CALL=TYPE     TRAP*1(104401)  TTY TYPEOUT ROUTINE
037570  037326                          $TYPOC  ;;CALL=TYPOC    TRAP*2(104402)  TYPE OCTAL NUMBER (WITH LEADING ZEROS)
037572  037302                          $TYPOS  ;;CALL=TYPOS    TRAP*3(104403)  TYPE OCTAL NUMBER (NO LEADING ZEROS)
037574  037342                          $TYPON  ;;CALL=TYPON    TRAP*4(104404)  TYPE OCTAL NUMBER (AS PER LAST CALL)
037576  037056                          $TYPDS  ;;CALL=TYPDS    TRAP*5(104405)  TYPE DECIMAL NUMBER (WITH SIGN)

                                .SBTTL  APT COMMUNICATIONS ROUTINE

                                ;;**************************************************************************
037600  112767  000001  000236  $ATY1:  MOVB    #1,$FFLG        ;;TO REPORT FATAL ERROR
037606  112767  000001  000226  $ATY3:  MOVB    #1,$MFLG        ;;TO TYPE A MESSAGE
037614  000403                  BR      $ATYC
037616  112767  000001  000220  $ATY4:  MOVB    #1,$FFLG        ;;TO ONLY REPORT FATAL ERROR
037624                          $ATYC:
037624  010046                  MOV     R0,-(SP)        ;;PUSH R0 ON STACK
037626  010146                  MOV     R1,-(SP)        ;;PUSH R1 ON STACK
037630  105767  000206          TSTB    $MFLG           ;;SHOULD TYPE A MESSAGE?
037634  001450                  BEQ     5$              ;;IF NOT:  BR
037636  122767  000001  141154  CMPB    @APTENV,$ENV    ;;OPERATING UNDER APT?
037644  001031                  BNE     3$              ;;IF NOT:  BR
037646  132767  000100  141145  BITB    @APTSPOOL,$ENVM ;;SHOULD SPOOL MESSAGES?
037654  001425                  BEQ     3$              ;;IF NOT:  BR
037656  017600  000004          MOV     @4(SP),R0       ;;GET MESSAGE ADDR.
037662  062766  000002  000004  ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
037670  005767  141104          1$:     TST     $MSGTYPE        ;;SEE IF DONE W/ LAST XMISSION?
037674  001375                  BNE     1$              ;;IF NOT:  WAIT
037676  010067  141112          MOV     R0,$MSGAD       ;;PUT ADDR IN MAILBOX
037702  105720                  2$:     TSTB    (R0)+           ;;FIND END OF MESSAGE
037704  001376                  BNE     2$
037706  166700  141102          SUB     $MSGAD,R0       ;;SUB START OF MESSAGE
037712  006200                  ASR     R0              ;;GET MESSAGE LNGTH IN WORDS
037714  010067  141076          MOV     R0,$MSGLGT      ;;PUT LENGTH IN MAILBOX
037720  012767  000004  141052  MOV     #4,$MSGTYPE     ;;TELL APT TO TAKE MSG.
```

```
7587  037726  000413                          BR      5$
7588  037730  017667  000004  000016  3$:     MOV     @4(SP),4$       ;;PUT MSG ADDR IN JSR LINKAGE
7589  037736  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDRESS
7590  037744  016746  140026                  MOV     177776,-(SP)    ;;PUSH 177776 ON STACK
7591  037750  004767  176526                  JSR     PC,$TYPE        ;;CALL TYPE MACRO
7592  037754  000000                  4$:     .WORD   0
7593  037756                          5$:
7594  037756  105767  000062          10$:    TSTB    $FFLG           ;;SHOULD REPORT FATAL ERROR?
7595  037762  001416                          BEQ     12$             ;;IF NOT:  BR
7596  037764  005767  141030                  TST     $ENV            ;;RUNNING UNDER APT?
7597  037770  001413                          BEQ     12$             ;;IF NOT:  BR
7598  037772  005767  141002          11$:    TST     $MSGTYPE        ;;FINISHED LAST MESSAGE?
7599  037776  001375                          BNE     11$             ;;IF NOT:  WAIT
7600  040000  017667  000004  140774          MOV     @4(SP),$FATAL   ;;GET ERROR #
7601  040006  062766  000002  000004          ADD     #2,4(SP)                ;;BUMP RETURN ADDR.
7602  040014  005267  140760                  INC     $MSGTYPE        ;;TELL APT TO TAKE ERROR
7603  040020  105067  000020          12$:    CLRB    $FFLG           ;;CLEAR FATAL FLAG
7604  040024  105067  000013                  CLRB    $LFLG           ;;CLEAR LOG FLAG
7605  040030  105067  000006                  CLRB    $MFLG           ;;CLEAR MESSAGE FLAG
7606  040034  012601                          MOV     (SP)+,R1        ;;POP STACK INTO R1
7607  040036  012600                          MOV     (SP)+,R0        ;;POP STACK INTO R0
7608  040040  000207                          RTS     PC              ;;RETURN
7609  040042     000          $MFLG:  .BYTE   0               ;;MESSG. FLAG
7610  040043     000          $LFLG:  .BYTE   0               ;;LOG FLAG
7611  040044     000          $FFLG:  .BYTE   0               ;;FATAL FLAG
7612          040046                  .EVEN
7613          000200          APTSIZE=200
7614          000001          APTENV=001
7615          000100          APTSPOOL=100
7616          000040          APTCSUP=040
7617                          ;;**************************************************************************
7618                          ;THIS ROUTINE WILL INCREMENT THE ERROR COUNT AND THEN PASS THE UNIQUE
7619                          ;ERROR NUMBER TO THE APT ERROR ROUTINE TO BE REPORTED TO THE APT SYSTEM.
7620
7621  040046  005267  141000  $ERROR: INC     $ERFLG          ;INCREMENT ERROR FLAG
7622  040052  001775                  BEQ     $ERROR          ;DON'T LET IT GO TO ZERO
7623  040054  005267  140764                  INC     ERRCNT          ; NCREMENT THE ERROR COUNT
7624  040060  021627  001002                  CMP     (SP),   #1002   ;IS ERROR FROM VECTOR AREA
7625  040064  101010                          BHI     1$              ;IF YES THEN
7626  040066  012767  007777  000106          MOV     #7777,  3$      ;REPORT AN UNEXPECTED TRAP
7627  040074  012637  001062                  MOV     (SP)+,@#SAVSP1  ;SAVE UNEXPECTED TRAP DATA
7628  040100  012637  001064                  MOV     (SP)+,@#SAVSP2  ;AND RESTORE SP
7629  040104  000430                          BR      2$              ;ELSE
7630  040106  017667  000000  000066  1$:     MOV     @(SP),  3$      ;REPORT UNIQUE ERROR NUMBER TO APT
7631  040114  011667  000072                  MOV     (SP),101$       ;SAVE ERROR PC
7632  040120  062716  000002                  ADD     #2,     (SP)    ;GET OVER UNIQUE ERROR NUMBER FOR RETURN
7633  040124  017637  000000  040134  100$:   MOV     @(SP),@#102$
7634  040132  104401                          TYPE                    ;TYPE ERROR MESSAGE
7635  040134  000000                  102$:   .WORD   0
7636  040136  062716  000002                  ADD     #2,(SP)         ;GET OVER ERROR MESSAGE
7637  040142  104401  002046                  TYPE    ,ERR1           ;
7638  040146  016746  000030                  MOV     3$,-(SP)        ;PUSH UNIQUE ERROR NUMBER ON THE STACK
7639  040152  104402                          TYPOC                   ;TYPE OCTAL ERROR NUMBER
7640  040154  104401  002062                  TYPE    ,ERR2           ;
7641  040160  016746  000026                  MOV     101$,-(SP)      ;PUSH ERROR PC ON THE STACK
7642  040164  104402                          TYPOC                   ;TYPE THE ERROR PC
```

```
7643  040166  122767  000001  140624  2$:     CMPB    @APTENV,$ENV        ;CHECK TO MAKE SURE WE'RE IN APT MODE
7644  040174  001004                          BNE     5$                  ;IF YES THEN
7645  040176  004767  177414                  JSR     PC,     $ATY4       ;GO REPORT ERROR TO APT
7646  040202  000000                  3$:     .WORD   0                   ;STORAGE FOR ERROR NUMBER
7647  040204  000777                  4$:     BR      4$                  ;LOOP HERE AFTER REPORTING ERROR TO APT
7648  040206  000000                  5$:     HALT                        ;IF NOT APT THEN HALT
7649  040210  000002                          RTI                         ;ALLOW RECOVERY FROM HALT
7650  040212  000000                  101$:   .WORD   0
7651  040214                          $PATCH::
7652  040214  000010                          .BLKW   10
7653          000001                  .END
```

```
ABASE = 000000           547
ACDW1 = 000000           547
ACDW2 = 000000           547
ACPUOP= 000000           547     562
ADDT    003556          1083    1091    1099    1107    1116    1132#
ADDW0 = 000000           547
ADDW1 = 000000           547
ADDW10= 000000           547
ADDW11= 000000           547
ADDW12= 000000           547
ADDW13= 000000           547
ADDW14= 000000           547
ADDW15= 000000           547
ADDW2 = 000000           547
ADDW3 = 000000           547
ADDW4 = 000000           547
ADDW5 = 000000           547
ADDW6 = 000000           547
ADDW7 = 000000           547
ADDW8 = 000000           547
ADDW9 = 000000           547
ADEVCT= 000000           547     553
ADEVM = 000000           547
AENV  = 000000           547     558
AENVM = 000000           547     559
AFATAL= 000000           547     550
ALLCTR  001056          589#
AMADR1= 000000           547
AMADR2= 000000           547
AMADR3= 000000           547
AMADR4= 000000           547
AMAMS1= 000000           547
AMAMS2= 000000           547
AMAMS3= 000000           547
AMAMS4= 000000           547
AMSGAD= 000000           547     555
AMSGLG= 000000           547     556
AMSGTY= 000000           547     549
AMTYP1= 000000           547
AMTYP2= 000000           547
AMTYP3= 000000           547
AMTYP4= 000000           547
APASS = 000000           547     552
APRIOR= 000000           547
APTCSU= 000040          7276    7616#
APTENV= 000001          7269    7572    7614#   7643
APTSIZ= 000200           867    7613#
APTSPO= 000100          7271    7574    7615#
ASWREG= 000000           547     560
ATESTN= 000000           547     551
AUNIT = 000000           547     554
AUSWR = 002000          466#     547     561
AVECT1= 000000           547
AVECT2= 000000           547
BEVENT= 177546          458#
BFA     003610          1077    1085    1093    1101    1110    1119    1138#
```

```
BFAC1    003352          1078    1083#
BFAC2    003376          1086    1091#
BFAC3    003422          1094    1099#
BFAC4    003446          1102    1107#
BFAC5    003474          1111    1116#
BFAE     003650          1120    1125    1148#
BFB      003646          1139    1141    1143    1145#
BIT0   = 000001           279#
BIT00  = 000001           269#    279
BIT01  = 000002           268#    278
BIT02  = 000004           267#    277
BIT03  = 000010           266#    276
BIT04  = 000020           265#    275
BIT05  = 000040           264#    274
BIT06  = 000100           263#    273
BIT07  = 000200           262#    272
BIT08  = 000400           261#    271
BIT09  = 001000           260#    270
BIT1   = 000002           278#
BIT10  = 002000           259#
BIT11  = 004000           258#
BIT12  = 010000           257#
BIT13  = 020000           256#
BIT14  = 040000           255#
BIT15  = 100000           254#
BIT2   = 000004           277#
BIT3   = 000010           276#
BIT4   = 000020           275#
BIT5   = 000040           274#
BIT6   = 000100           273#
BIT7   = 000200           272#
BIT8   = 000400           271#
BIT9   = 001000           270#
BOARDT= 000001              1#    509     606     761
BPTVEC= 000014            286#
BTER     002650           934     936     938     941#
BTEXP    001066           596#    897     913     916     919     922     925     929     933     935     937     939     1056
                         1058*   1059*   1060*   1061*   1062    1065    1068    1070    1072    1074    1127*   1128*   1129*
                         1130*   1132*   1133*   1134*   1135*   1138    1140    1142    1144
BTGO     002450          902#    1017
BTRES    001076          597#    898     914*    917*    920*    923*    933     935     937     939     953*    962*    971*
                         980*    990*    1000*   1025    1027    1029    1031    1057    1076*   1084*   1092*   1100*   1109*
                         1118*   1138    1140    1142    1144
BTTST    003150          954     963     972     981     991     1001    1025#
BTTSTE   003176          1026    1028    1030    1032#
BT1    = ****** U        883
CACHET= 000001              1#    156     159     177     509     594     609     752     761     831     874     7194    7245
                         7497
CCR    = 177746          452#    832*    875*
CHECK7   005132          1474    1478    1486    1490    1496#
CHEC10   005366          1545    1549    1557    1561    1567#
CHEC26   010616          2321    2332    2343    2356    2367    2381#
CHEC27   011162          2441    2459    2477    2489#
CHEC30   011730          2549    2567    2585    2596#
CHEC32   012166          2701    2712    2723    2734#
CHEC33   012464          2788    2799    2810    2821#
```

CHEK? 005136 1497# 1503
CHK10 005404 1569 1574#
CHK7 005150 1498 1503#
CH10 005372 1568# 1574
CLRD = ****** U 5809
CLRI = ****** U 5840
CMPD = ****** U 4039
CMPRTN 017730 4047 4056 4065 4073 4095#
COUNT 001040 581# 817* 822* 823* 2919 2964 3004 3040 3070 3106 3144 3175 3194
3211 3229 3263 3282 3313 3332 3357 3371 3403 3415 3431 3444 3476
3512 3550 3575 3597 3619 3651 3670 3697 3711 3742 3780 3805 3843
3868 3906 3938 3968 4006 4030 4122 4361 4560 4779 4987 5206 5217
5506 5517 5622 5762 5824 6191 6369 6498 6797 7026
CPEREG= 77766 455#
CPUTST= 000001 1# 166 509 603 756 877 7233
CR = 000015 194# 752 756 761 763 766 7233 7241 7332 7344
CRLF = 000200 195# 7286 7344
DATRAM= 000001 1# 874
DATVER 002146 820# 2918 2963 3003 3039 3069 3105 3143 3174 3193 3210 3228 3262
3281 3312 3331 3356 3370 3402 3414 3430 3443 3475 3511 3549 3574
3596 3618 3650 3669 3696 3710 3741 3779 3804 3842 3867 3905 3937
3967 4005 4029 4121 4559 4986 5505 5516 5621 5823 6190 649? 6796
DATVFR 002130 815# 4360 4778 5205 5216 5761 6368 7025
DAT1 002160 818 823# 826
DCOUNT 001054 588#
DDISP = 177570 201# 585 848
DISPLA 001050 585# 848* 856*
DISPRE 000174 495# 856
DIVD = ****** U 4381
DIVF = ****** U 4133
DSWR = 177570 200# 584 847
DVDSUB 022000 4389 4401 4413 4424 4435 4446 4457 4468 4480 4506#
DVFSUB 021002 4141 4151 4160 4168 4177 4185 4193 4201 4209 4217 4225 4233 4241
4250 4258 4267 4276 4285 4307#
D1 004236 1275# 1291 1296
D2 004250 1278* 1279#
D3 004252 1280# 1304
D4 004270 1288# 1325 1331
D5 004304 1289 1292#
D6 004314 1293 1295#
D7 004320 1294 1297#
EMTVEC= 000030 289# 836* 837*
ERR 002126 794#
ERRCNT 001044 583# 7623*
ERRFP 002124 793#
ERRMSG 001766 G 752#
ERRNUM= 000514 465# 785 788# 941 945# 956 959# 965 968# 974 977# 983 986#
993 996# 1003 1006# 1079 1082# 1087 1090# 1095 1098# 1103 1106# 1112
1115# 1121 1124# 1175 1178# 1208 1211# 1228 1231# 1236 1239# 1246 1249#
1254 1257# 1284 1287# 1306 1309# 1314 1317# 1326 1330# 1333 1337# 1340
1344# 1364 1367# 1371 1374# 1380 1384# 1404 1407# 1412 1415# 1421 1424#
1429 1432# 1448 1452# 1499 1502# 1506 1510# 1570 1573# 1577 1581# 1616
1619# 1623 1626# 1652 1655# 1658 1661# 1685 1688# 1692 1695# 1699 1702#
1708 1712# 1737 1740# 1745 1748# 1752 1755# 1761 1765# 1791 1794# 1798
1801# 1805 1808# 1813 1816# 1820 1823# 1829 1833# 1858 1861# 1865 1868#
1873 1876# 1880 1883# 1889 1893# 1919 1922# 1925 1928# 1932 1935# 1940

1943# 1947 1950# 1956 1960# 1985 1988# 1993 1996# 2001 2004# 2008 2011#
2017 2021# 2048 2051# 2055 2058# 2062 2065# 2069 2072# 2076 2079# 2085
2089# 2115 2118# 2123 2126# 2130 2133# 2139 2143# 2169 2172# 2176 2179#
2185 2189# 2216 2219# 2223 2226# 2229 2232# 2236 2239# 2245 2249# 2273
2276# 2281 2284# 2289 2292# 2296 2299# 2316 2319# 2327 2330# 2338 2341#
2351 2354# 2362 2365# 2372 2375# 2384 2387# 2437 2440# 2445 2448# 2454
2457# 2463 2466# 2472 2475# 2481 2484# 2493 2496# 2545 2548# 2553 2556#
2562 2565# 2571 2574# 2580 2583# 2589 2592# 2600 2603# 2650 2653# 2657
2660# 2664 2667# 2674 2678# 2705 2708# 2716 2719# 2727 2730# 2738 2741#
2792 2795# 2803 2806# 2814 2817# 2825 2828# 2871 2874# 2878 2881# 2884
2887# 2906 2909# 2912 2915# 2922 2925# 2945 2948# 2951 2954# 2957 2960#
2966 2969# 2992 2995# 2998 3001# 3006 3009# 3028 3031# 3034 3037# 3042
3045# 3063 3066# 3072 3075# 3094 3097# 3100 3103# 3108 3111# 3131 3134#
3139 3142# 3146 3149# 3168 3171# 3177 3180# 3189 3192# 3196 3199# 3205
3208# 3213 3216# 3224 3227# 3231 3234# 3257 3260# 3265 3268# 3276 3279#
3284 3287# 3308 3311# 3315 3318# 3326 3329# 3334 3337# 3359 3362# 3373
3376# 3397 3400# 3405 3408# 3417 3420# 3433 3436# 3446 3449# 3470 3473#
3478 3481# 3489 3492# 3498 3501# 3505 3508# 3514 3517# 3527 3530# 3536
3539# 3543 3546# 3552 3555# 3569 3572# 3577 3580# 3591 3594# 3599 3602#
3613 3616# 3621 3624# 3645 3648# 3653 3656# 3664 3667# 3672 3675# 3699
3702# 3713 3716# 3736 3739# 3744 3747# 3757 3760# 3766 3769# 3773 3776#
3782 3785# 3799 3802# 3807 3810# 3820 3823# 3829 3832# 3836 3839# 3845
3848# 3862 3865# 3870 3873# 3883 3886# 3894 3897# 3900 3903# 3908 3911#
3932 3935# 3940 3943# 3953 3956# 3962 3965# 3970 3973# 3984 3987# 4000
4003# 4008 4011# 4024 4027# 4032 4035# 4112 4115# 4124 4127# 4323 4326#
4332 4335# 4341 4344# 4354 4357# 4363 4366# 4374 4377# 4522 4525# 4531
4534# 4540 4543# 4553 4556# 4562 4565# 4573 4576# 4741 4744# 4750 4753#
4759 4762# 4772 4775# 4781 4784# 4793 4796# 4949 4952# 4958 4961# 4967
4970# 4980 4983# 4989 4992# 5001 5004# 5167 5170# 5176 5179# 5185 5188#
5199 5202# 5208 5211# 5219 5222# 5230 5233# 5467 5470# 5476 5479# 5485
5488# 5499 5502# 5508 5511# 5519 5522# 5530 5533# 5615 5618# 5624 5627#
5630 5634# 5726 5729# 5735 5738# 5744 5747# 5755 5758# 5764 5767# 5776
5779# 5796 5799# 5802 5805# 5826 5829# 5833 5836# 5853 5856# 5859 5862#
5880 5883# 5886 5889# 5892 5895# 5900 5903# 5921 5924# 5927 5930# 5933
5936# 5941 5944# 5964 5967# 5970 5973# 5976 5979# 5984 5987# 6005 6008#
6011 6014# 6017 6020# 6025 6028# 6048 6051# 6054 6057# 6060 6063# 6068
6071# 6089 6092# 6095 6098# 6101 6104# 6109 6112# 6132 6135# 6138 6141#
6144 6147# 6152 6155# 6176 6179# 6183 6186# 6193 6196# 6362 6365# 6371
6374# 6380 6383# 6491 6494# 6500 6503# 6509 6512# 6758 6761# 6767 6770#
6776 6779# 6790 6793# 6799 6802# 6811 6814# 6990 6993# 6999 7002# 7008
7011# 7019 7022# 7028 7031# 7040 7043# 7169 7172# 7176 7179# 7185 7188#

ERRTN = 000000 463#
ERRVEC= 000004 282# 845 846* 857*
ERR1 002046 761# 7637
ERR2 002062 763# 7640
EXPDAT 001034 579#
FACU = ****** U 1040
FIN1 003742 1169 1180#
FIN10 005450 1565 1596#
FIN11 005560 1630 1636#
FIN13 006004 1706 1715#
FIN14 006160 1759 1768#
FIN15 006400 1827 1836#
FIN16 006572 1887 1896#
FIN17 007006 1954 1963#
FIN2 004044 1199 1213#

```
FIN20   007206          2015    2024#
FIN21   007430          2083    2092#
FIN22   007616          2137    2146#
FIN23   007754          2183    2191#
FIN24   010156          2243    2252#
FIN26   010720          2379    2415#
FIN27   011264          2487    2523#
FIN30   011632          2594    2630#
FIN31   011774          2672    2681#
FIN32   012270          2732    2768#
FIN33   012566          2819    2855#
FIN4    004444          1302    1346#
FIN5    004554          1378    1386#
FIN6    004760          1437    1454#
FIN7    005214          1494    1525#
FLAG    001042           582#   4046+  4055+  4064+  4116   4140+  4150+  4159+  4167+  4176+  4184+  4192+  4200+
                        4208+  4216+  4224+  4232+  4240+  4249+  4257+  4266+  4275+  4284+  4321   4330   4367
                        4388+  4400+  4412+  4423+  4434+  4445+  4456+  4467+  4479+  4520   4529   4566   4587+
                        4595+  4603+  4611+  4619+  4627+  4635+  4643+  4651+  4659+  4667+  4675+  4684+  4693+
                        4702+  4739   4748   4785   4806+  4817+  4828+  4839+  4850+  4861+  4872+  4883+  4895+
                        4906+  4947   4956   4993   5014+  5023+  5032+  5041+  5050+  5060+  5069+  5078+  5087+
                        5096+  5105+  5114+  5123+  5165   5174   5223   5247+  5260+  5273+  5286+  5299+  5312+
                        5325+  5338+  5351+  5364+  5378+  5391+  5405+  5419+  5465   5474   5523   5646+  5654+
                        5662+  5670+  5678+  5686+  5724   5733   5768   6524+  6534+  6544+  6554+  6564+  6574+
                        6585+  6596+  6607+  6618+  6629+  6639+  6649+  6660+  6671+  6681+  6692+  6702+  6713+
                        6756   6765   6803   6826+  6834+  6842+  6850+  6858+  6866+  6874+  6882+  6890+  6898+
                        6906+  6914+  6922+  6930+  6938+  6946+  6988   6997   7032   7055+  7063+  7071+  7079+
FPPERR  002013           756#   787    944    958    967    976    985    995   1005   1081   1089   1097   1105
                        1114   1123   1177   1210   1230   1238   1248   1256   1286   1308   1316   1329   1336
                        1343   1366   1373   1383   1406   1414   1423   1431   1451   1501   1509   1572   1580
                        1618   1625   1654   1660   1687   1694   1701   1711   1739   1747   1754   1764   1793
                        1800   1807   1815   1822   1832   1860   1867   1875   1882   1892   1921   1927   1934
                        1942   1949   1959   1987   1995   2003   2010   2020   2050   2057   2064   2071   2078
                        2088   2117   2125   2132   2142   2171   2178   2188   2218   2225   2231   2238   2248
                        2275   2283   2291   2298   2318   2329   2340   2353   2364   2374   2386   2439   2447
                        2456   2465   2474   2483   2495   2547   2555   2564   2573   2592   2591   2602   2652
                        2659   2666   2677   2707   2718   2729   2740   2794   2805   2816   2827   2873   2880
                        2886   2908   2914   2924   2947   2953   2959   2968   2994   3000   3008   3030   3036
                        3044   3065   3074   3096   3102   3110   3133   3141   3148   3170   3179   3194   3198
                        3207   3215   3226   3233   3259   3267   3278   3286   3310   3317   3328   3356   3361
                        3375   3399   3407   3419   3435   3448   3472   3480   3491   3500   3507   3516   3529
                        3538   3545   3554   3571   3579   3593   3601   3615   3623   3647   3655   3666   3674
                        3701   3715   3738   3746   3759   3768   3775   3784   3801   3809   3822   3831   3838
                        3847   3864   3872   3885   3896   3902   3910   3934   3942   3955   3964   3972   3986
                        4002   4010   4026   4034   4114   4126   4325   4334   4343   4356   4365   4376   4524
                        4533   4542   4555   4564   4575   4743   4752   4761   4774   4783   4795   4951   4960
                        4969   4982   4991   5003   5169   5178   5187   5201   5210   5221   5232   5469   5478
                        5487   5501   5510   5521   5532   5617   5626   5633   5728   5737   5746   5757   5766
                        5778   5798   5804   5828   5835   5855   5861   5882   5888   5894   5902   5923   5929
                        5935   5943   5966   5972   5978   5986   6007   6013   6019   6027   6050   6056   6062
                        6070   6091   6097   6103   6111   6134   6140   6146   6154   6178   6185   6195   6364
                        6373   6382   6493   6502   6511   6760   6769   6778   6792   6801   6813   6992   7001
                        7010   7021   7030   7042   7171   7178   7187
FPPTST= ****** U           1    166    509    596    609    610    756    761    782    877   7233
FPTS1 = ****** U        1152
FPTS10= ****** U        1527
```

```
FPTS11= ****** U        1598
FPTS12= ****** U        1638
FPTS13= ****** U        1665
FPTS14= ****** U        1717
FPTS15= ****** U        1770
FPTS16= ****** U        1838
FPTS17= ****** U        1898
FPTS2 = ****** U        1182
FPTS20= ****** U        1965
FPTS21= ****** U        2026
FPTS22= ****** U        2093
FPTS23= ****** U        2148
FPTS24= ****** U        2193
FPTS25= ****** U        2254
FPTS26= ****** U        2302
FPTS27= ****** U        2417
FPTS3 = ****** U        1215
FPTS30= ****** U        2525
FPTS31= ****** U        2632
FPTS32= ****** U        2683
FPTS33= ****** U        2770
FPTS4 = ****** U        1261
FPTS5 = ****** U        1348
FPTS6 = ****** U        1388
FPTS7 = ****** U        1456
FPVEC = 000244            449#  3485*  3521*  3561*  3754*  3789*  3814*  3852*  3877*  4308*  4507*  4726*  4934*
                         5150*  5450*  5599*  5711*  5875*  5916*  5959*  6000*  6043*  6084*  6127*  6168*  6346*
                         6475*  6740*  6971*  7153*
FSRCMO= ****** U        2857
GNS   = ****** U         494  7553  7554  7555  7556  7557
HITMIS= 177752            454#
HOP10   021244           4294  4380#
HOP11   022242           4492  4579#
HOP12   023304           4712  4798#
HOP13   024336           4919  5006#
HOP14   025436           5133  5238#
HOP15   027136           5434  5536#
HOP16   027456           5585  5637#
HOP17   030144           5695  5782#
HOP18   032464           6329  6385#
HOP19   033106           6459  6515#
HOP20   034532           6725  6817#
HOP21   035622           6955  7046#
HOP22   036274           7139  7192#
HOP44   020056           4080  4129#
MT    = 000011            192#  7284  7342
MYBRID= 000001              1#   471   604   874  7205  7221  7233  7246  7497  7560
ILL     004544           1356  1380#
ILLOP1  004340           1270  1304#
ILLOP2  004434           1274  1340#
IOTVEC= 000020            287#   871*  872*
KDPAR0= 172360            430#
KDPAR1= 172362            431#
KDPAR2= 172364            432#
KDPAR3= 172366            433#
KDPAR4= 172370            434#
```

```
KDPAR5= 172372          4350
KDPAR6= 172374          4360
KDPAR7= 172376          4370
KDPDR0= 172320          4080
KDPDR1= 172322          4090
KDPDR2= 172324          4100
KDPDR3= 172326          4110
KDPDR4= 172330          4120
KDPDR5= 172332          4130
KDPDR6= 172334          4140
KDPDR7= 172336          4150
KIPAR0= 172340          4190
KIPAR1= 172342          4200
KIPAR2= 172344          4210
KIPAR3= 172346          4220
KIPAR4= 172350          4230
KIPAR5= 172352          4240
KIPAR6= 172354          4250
KIPAR7= 172356          4260
KIPDR0= 172300          3970
KIPDR1= 172302          3980
KIPDR2= 172304          3990
KIPDR3= 172306          4000
KIPDR4= 172310          4010
KIPDR5= 172312          4020
KIPDR6= 172314          4030
KIPDR7= 172316          4040
LCD     = ****** U      6387
LCDSUB  032760          6394    6401    6408    6415    6422    6429    6436    6443    6450    6474#
LCF     = ****** U      6201
LCFSUB  032336          6208    6214    6220    6226    6232    6238    6244    6250    6256    6262    6268    6274    6280
                        6286    6292    6298    6304    6310    6316    6322    6345#
LDC     = ****** U      3915
LDC2    = ****** U      6159
LDDM2   = ****** U      2891
LDDM3   = ****** U      2928
LDDM4   = ****** U      2972
LDDM5   = ****** U      3012
LDDM6   = ****** U      3048
LDDM7   = ****** U      3078
LDM27   = ****** U      3114
LF      = 000012        1930    752     756     761     763     766     7233    241     7336    7344
LOOPIN  001060          590#
LOST    003722          1160    1162    1164    1166    1171#
LS1     = ****** U      5866
LS2     = ****** U      5907
LS3     = ****** U      5948
LS4     = ****** U      5991
LS5     = ****** U      6032
LS6     = ****** U      6075
LS7     = ****** U      6116
LXP     = ****** U      6517
LXPSUB  034262          6525    6535    6545    6555    6565    6575    6586    6597    6608    6619    6630    6640    6650
                        6661    6672    6682    6693    6703    6714    6739#
MACE    002610          915     918     921     924     933#
MACO    002500          911     913#
```

```
MACOA   002504          9140#   928     932
MAC1    002514          9160#
MAC2    002530          9190#
MAC3    002544          9220#
MAC4    002560          9250#
MAC5    002574          9290#
MBTE    003200          1021    10370#
MBT1    002422          8830#
MBT2    002430          8960#
MBT2A   002442          8990#   1022
MBT8    002656          940     9470#
MBT8A   002712          950     952     955     9600#
MBT8B   002740          961     964     9690#
MBT8C   002766          970     973     9780#
MBT8D   003014          979     982     9870#
MBT8E   003044          988     992     9970#
MBT8F   003074          998     1002    10070#
MBT8FG  003110          1010    10120#
MBT8I   003134          1016    10190#
MCLRD   030214          5809#
MCLRI   030306          5840#
MCMPD   017542          40390#
MDDSUB  026636          5248    5261    5274    5287    5300    5315    5326    5339    5352    5365    5379    5392    5406
                        5420    5449#
MDFSUB  025126          5015    5024    5033    5042    5051    5061    5070    5079    5088    5097    5106    5115    5124
                        5149#
MDIVD   021244          4381#
MDIVF   020056          4133#
MFA     003206          1054#
MFACU   003200          1040#
MFSRCM  012566          2857#
MLCD    032464          6387#
MLCF    031626          6201#
MLDC    017120          3915#
MLDC2   031506          6159#
MLDDM2  012656          2891#
MLDDM3  012764          2928#
MLDDM4  013124          2972#
MLDDM5  013250          3012#
MLDDM6  013360          3048#
MLDDM7  013460          3078#
MLDM27  013566          3114#
MLDSUB  024074          4807    4818    4829    4840    4851    4862    4873    4884    4896    4907    4933#
MLFSUB  023042          4588    4596    4604    4612    4620    4628    4636    4644    4652    4560    4668    4676    4685
                        4694    4703    4725#
MLS1    030356          5866#
MLS2    030474          5907#
MLS3    030612          5948#
MLS4    030746          5991#
MLS5    031066          6032#
MLS6    031222          6075#
MLS7    031346          6116#
MLXP    033106          6517#
MMODD   025436          5240#
MMODF   024336          5007#
MMULD   023304          4799#
```

```
MMULF   022242          4580#
MMUTST= 000001            1#     166     509     595     752     756     761     78?     8 4     877    7233    7497
MMVEC = 000250          2980#
MNGOP   015104          3454#
MNNRM1  013700          3152#
MNNRM2  014164          3238#
MNNRM3  014342          3291#
MNNRM4  014510          3341#
MNRM    016066          3679#
MODD  = ****** U        5240
MODF  = ****** U        5007
MODGAR  025426          5154    5236#   5454
MSB     015720          3629#
MSCD    034532          6819#
MSCF    035622          7048#
MSDF    027456          5639#
MSER  = 177744           453#
MSFD    027136          5537#
MSFDI   030144          5783#
MSG1    036402          7207    7233#
MSG2    036456          7217    7241#
MSXP    035770          7089#
MULD  = ****** U        4799
MULF  = ****** U        4580
MUVAD   016212          3719#
MXDF1   014634          3380#
MXVDEL= 000001             1#
NGOP  = ****** U        3454
NNRM1 = ****** U        3152
NNRM2 = ****** U        3238
NNRM3 = ****** U        3291
NNRM4 = ****** U        3341
NRM   = ****** U        3679
PARRAM= 000001             1#
PIRQ  = 177772           199#
PIRQVE= 000240           293#
PR0   = 000000           216#
PR1   = 000040           217#
PR2   = 000100           218#
PR3   = 000140           219#
PR4   = 000200           220#
PR5   = 000240           221#
PR6   = 000300           222#
PR7   = 000340           223#
PS    = 177776           196#    197
PSW   = 177776           197#
PWRVEC= 000024           288#
QBUSEX= 000001             1#    602
RBUF  = 177562           460#
RCSR  = 177560           459#
RECDAT  001036           580#
RECDST  001126           600#   2897    2934    2962    2978    301?    3054    3034    3120    3159*   3160*   3172    3244
                        3297    3351    3389    3466    3494    35      3565    3587    3609    3638    3693    3708    3732
                        3762    3795    3825    3858    3888    3928    3958    3996    4020    4108    4350    4549    4768
                        4976    5194    5494    5603    5715    581?    6138    6347    6476    6741    6972    7154    7174
RECFEC  001106           598#   2865    5772    6807    7036
```

```
RECST   001116          5990#  5874   5884   5890   5915   5925   5931   5958   5974   5999   6009   6015   6042
                        6058
RESTAR  002410          8740#  7230
RESVEC* 000010          2830#
SAVSP1  001062          5910#  7627*
SAVSP2  001064          5920#  7628*
SB    = ****** U        3629
SCD   = ****** U        6819
SCDSUB  035356          6827   6835   6843   6851   6859   6867   6875   6883   6891   6899   6907   6915   6923
                        6931   6939   6947   6970#  7056   7064   7072   7080
SCF   = ****** U        7048
SDF   = ****** U        5639
SDFSUB  027712          5647   5655   5663   5671   5679   5687   5710#
SDPAR0= 172260          3860#
SDPAR1= 172262          3870#
SDPAR2= 172264          3880#
SDPAR3= 172266          3890#
SDPAR4= 172270          3900#
SDPAR5= 172272          3910#
SDPAR6= 172274          3920#
SDPAR7= 172276          3930#
SDPDR0= 172220          3640#
SDPDR1= 172222          3650#
SDPDR2= 172224          3660#
SDPDR3= 172226          3670#
SDPDR4= 172230          3680#
SDPDR5= 172232          3690#
SDPDR6= 172234          3700#
SDPDR7= 172236          3710#
SFD   = ****** U        5537
SFDI  = ****** U        5783
SFDSUB  027336          5544   5552   5560   5568   5576   5598#
SHMOO = 000001            1#    536   7233
SIPAR0= 172240          3750#
SIPAR1= 172242          3760#
SIPAR2= 172244          3770#
SIPAR3= 172246          3780#
SIPAR4= 172250          3790#
SIPAR5= 172252          3800#
SIPAR6= 172254          3810#
SIPAR7= 172256          3820#
SIPDR0= 172200          3530#
SIPDR1= 172202          3540#
SIPDR2= 172204          3550#
SIPDR3= 172206          3560#
SIPDR4= 172210          3570#
SIPDR5= 172212          3580#
SIPDR6= 172214          3590#
SIPDR7= 172216          3600#
SKIPID  036306          7206   7208#
SLOC00  001030          5750#
SLOC01  001032          5760#
SR0   = 177572          3020#
SR1   = 177574          3030#
SR2   = 177576          3040#
SR3   = 172516          3050#
```

```
STACK = 001000            187#    834
START   002200            492     498     831#
STBOT = 001000            470#
STKLMT= 177774            198#
SUBT    003524           1064    1067    1069    1071    1073    1127#
SWR     001046            584#    847*    849     855*    869*
SWRFG   000176            496#    855
SW0   = 000001            251#
SW00  = 000001            241#    251
SW01  = 000002            240#    250
SW02  = 000004            239#    249
SW03  = 000010            238#    248
SW04  = 000020            237#    247
SW05  = 000040            236#    246
SW06  = 000100            235#    245
SW07  = 000200            234#    244
SW08  = 000400            233#    243
SW09  = 001000            232#    242
SW1   = 000002            250#
SW10  = 002000            231#
SW11  = 004000            230#
SW12  = 010000            229#
SW13  = 020000            228#
SW14  = 040000            227#
SW15  = 100000            226#
SW2   = 000004            249#
SW3   = 000010            248#
SW4   = 000020            247#
SW5   = 000040            246#
SW6   = 000100            245#
SW7   = 000200            244#
SW8   = 000400            243#
SW9   = 001000            242#
SXP   - ****** U          7089
SXPSUB  036154            7096    7103    7110    7117    7124    7131    7152#
TAB1    001176             610#   2898    2910    2916    3020    3038    3086    3104    3249
TAB10   001326             652#   3390    3429
TAB11   001336             656#   3388
TAB11A  001346             660#   3401
TAB12   001356             662#   3409
TAB13   001366             664#
TAB13B  001376             668#   3412
TAB14   001406             670#   3422    3657
TAB15   001416             674#   3423
TAB16   001426             678#   3437    3948
TAB17   001436             682#   3442
TAB18   001446             685#   3330
TAB2    001206             614#   2936    2961    3055    3246
TAB21   001456             689#   3462    3483    3520    3637
TAB22   001466             691#   3474
TAB23   001476             693#   3484    3519
TAB24   001506             695#   3510    3548
TAB25   001516             697#   3558    3582
TAB26   001526             699#   3557    3583
TAB27   001536             701#   3573    3595
TAB28   001546             703#   3605
```

N12


```
TAB29   001556          7050#  3604
TAB29A  001566          7070#  3617
TAB3    001216          6180#  2979    2996    3002
TAB30   001576          7100#  3688
TAB31   001606          7120#  3687
TAB32   001616          7140#  3703
TAB33   001626          7160#  3704
TAB34   001636          7180#  3695
TAB4    001226          6220#  3261    3280
TAB40   001646          7200#  3727    3728    3751    3752
TAB41   001656          7220#  3791    3816    3853    3878
TAB42   001666          7240#  3854    3879
TAB43   001676          7260#  3904
TAB45   001706          7280#  3924    3930    3947    3951    3992
TAB46   001716          7300#  3936
TAB47   001726          7320#  3991    5815
TAB47A  001736          7340#
TAB48   001746          7360#  4004    4016
TAB49   001756          7380#  3966
TAB5    001236          6260#  3121
TAB5A   001246          6300#  3841
TAB6    001256          6340#  2980    3158    3245    3298    3649    3668    3740    3778    3803    3866    3925    4015
                        4028   4118    5822
TAB6A   001266          6380#  6187
TAB7    001276          6420#  3349    3790    3815
TAB8    001306          6460#  3350    3363    3364
TAB9    001316          6500#  3355
TAGRAM= 000001            10#   874
TBITVE= 000014          2840#
TIMEOU  004424          1272   1333#
TKVEC = 000060          2910#
TPVEC = 000064          2920#
TRAPVE= 000034          2900#   838*    839*
TRPFLG  002122          7920#  1158*   1188*   1221*   1267*   1354*   1394*   1462*   1533*   1604*   1644*   1673*   1725*
                       1778*   1846*   1906*   1971*   2032*   2099*   2154*   2199*   2260*   2308*   2423*   2531*   2638*
                       2689*   2776*
TRTVEC= 000014          2850#
TSD31   011662         2643#   2654
TSFP1   003650         1152#
TSFP10  005214         1527#
TSFP11  005450         1598#
TSFP12  005560         1638#
TSFP13  005634         1665#
TSFP14  006004         1717#
TSFP15  006160         1770#
TSFP16  006400         1838#
TSFP17  006572         1898#
TSFP2   003742         1182#
TSFP20  007006         1965#
TSFP21  007206         2026#
TSFP22  007430         2093#
TSFP23  007616         2148#
TSFP24  007754         2193#
TSFP25  010156         2254#
TSFP26  010320         2302#
TSFP27  010720         2417#
```

```
TSFP3   004044          1215#
TSFP30  011264          2525#
TSFP31  011632          2632#
TSFP32  011774          2683#
TSFP33  012270          2770#
TSFP4   004164          1261#
TSFP5   004444          1348#
TSFP6   004554          1388#
TSFP7   004760          1456#
TSF10   005410          1537    1577#
TSF13   005774          1672    1708#
TSF14   006150          1724    1761#
TSF15   006370          1777    1829#
TSF16   006562          1845    1889#
TSF17   006776          1905    1956#
TSF2    004014          1190    1192    1194    1196    1201#
TSF20   007176          1973    2017#
TSF21   007420          2034    2085#
TSF22   007606          2101    2139#
TSF23   007744          2156    2185#
TSF24   010146          2201    2245#
TSF31   011764          2640    2674#
TSF6    004750          1399    1448#
TSF7    005154          1466    1506#
TSTLOC  001136           608#   1417    1419    1472    1475    1484    1488    1543    1546    1555    1559    1611    1677
                        1680    1683    1729    1732    1735    1741    1782    1785*   1786    1789    1795    1796    1850
                        1853    1856    1910    1913*   1914    1917    1923    1977    1980    1983    1989    2038    2041*
                        2042    2045    2051    2060    2105    2108*   2109*   2111    2160    2163*   2166    2205    2208*
                        2209*   2211    2220    2264    22E7    2270    2276    2427    2431    2434    2448    2451    2457
                        2466    2469    2475    2535    2539    2542    2556    2559    2565    2574    2577    2583    2693
                        2697*   2699    2708*   2710    2719*   2721    2780    2784*   2786    2795*   2797    2806*   2808
                        2934*   2935    2936*   2937    2949    2955    3019    3020*   3032    3086*   3089    5872    5878
                        5913    5919    5954    5955*   5956*   5957    5958*   5962    5968    5997    5998*   6003    6038
                        6039*   6040*   6041    6042*   6046    6052    6081    6082*   6083    6087    6093    6099    6122
                        6123*   6124*   6125    6126*   6130    6136    6142
TST1    002422           893#
TST10   004554          1392#
TST100  031066          6036#
TST101  031222          6079#
TST102  031346          6120#
TST103  031506          6163#
TST104  031626          6205#
TST105  032464          6391#
TST106  033106          6521#
TST107  034532          6823#
TST11   004760          1460#
TST110  035622          7052#
TST111  035770          7095#
TST12   005214          1531#
TST13   005450          1602#
TST14   005560          1642#
TST15   005634          1669#
TST16   006004          1721#
TST17   006160          1774#
TST2    003200          1048#
TST20   006400          1842#
```

TST21	006572	1902#		
TST22	007006	1969#		
TST23	007206	2030#		
TST24	007430	2097#		
TST25	007616	2152#		
TST26	007754	2197#		
TST27	010156	2258#		
TST3	003650	1156#		
TST30	010320	2306#		
TST31	010720	2421#		
TST32	011264	2529#		
TST33	011632	2636#		
TST34	011774	2687#		
TST35	012270	2774#		
TST36	012566	2861#		
TST37	012656	2895#		
TST4	003742	1186#		
TST40	012764	2932#		
TST41	013124	2976#		
TST42	013250	3016#		
TST43	013360	3052#		
TST44	013460	3082#		
TST45	013566	3118#		
TST46	013700	3156#		
TST47	014164	3242#		
TST5	004044	1219#		
TST50	014342	3295#		
TST51	014510	3345#		
TST52	014634	3384#		
TST53	015104	3458#		
TST54	015720	3633#		
TST55	016066	3683#		
TST56	016212	3723#		
TST57	017120	3919#		
TST6	004164	1265#		
TST60	017542	4043#		
TST61	020056	4137#		
TST62	021244	4385#		
TST63	022242	4584#		
TST64	023304	4803#		
TST65	024336	5011#		
TST66	025436	5244#		
TST67	027136	5541#		
TST7	004444	1352#		
TST70	027456	5643#		
TST71	030144	5787#		
TST72	030214	5813#		
TST73	030306	5844#		
TST74	030356	5870#		
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TYPON = 104404          7556#
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$$SET     7526#  7545   7554   7555   7556   7557
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$$SKIP    294#
.EQUAT    159#   184
.HEADE    161#   166
.KT11     159#   294
.SETUP    161#   471
.$ACT1    161#   499
.$APTB    159#   544
.$APTH    161#   509
.$APTY    162#  7560
.$EOP     159#  7196
.$ERRO    162#
.$READ    162#
.$TRAP    161#  7497
.$TYPD    160#  7353
.$TYPE    160#  7246
.$TYPO    162#  7420
.$40CA    159#   472

. ABS.   040234      000

ERRORS DETECTED:  0

CZKDLB/EN:ABS,CZKDLB.SEQ/CRF/DOC/SOL/NL:TOC=SYSMAC.SML/ML,CZKDLB.MAC/ML,KDJ11A.MAC
RUN-TIME: 249 141 10 SECONDS
RUN TIME RATIO: 539/400=1.3
CORE USED:  52K  (103 PAGES)
DOCUMENT PAGES:  165
```